DOCHQH

河南东川电气设备有限公司
He nan Dongchuan electricity equipment co., ltd

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诚招全国代理商：

DOCHQH

选型手册

Production Manual

接近开关/光电开关/磁性开关

Promixity Switches/photoelectric Switch/Magnetic switch series

科技创新，不断超越

Science and technology innovation, constantly surpass

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来电热线：0371-5555 8022

Brand Reputation
品牌实力

接近开关/光电开关/磁性开关
Promixity Switches/photoelectric Switch/Magnetic switch series

公司实施现场管理和流程 化生产控制模式，强化生产过程管理，确保每道工序质量达标，保证品质零缺陷，使得我们产品在制造过程中亦体现出卓越的品质与潜在的价值，为沪创品牌树立打下了坚实基础。

在高品质、高精度目标的坚持下，结合沪创人的智慧与勤劳，不断为全球客户提供高质量、高性能的产品，在强手如林的电气制造领域里，闯出一片更为广阔的天地！

The company carry out on-site management and production process control, strengthen the management of the production process, to ensure that each process quality standard, to ensure the quality of zero defects, making our products in the manufacturing process also reflects the excellent quality and potential value, as the Huchuang set up to lay a solid foundation.

In the high-quality, high precision target's insistence, with the Huchuang People and Wisdom and hard-working, for global customers with high quality, high performance products, in the electrical compny manufacturing field, break a more vast world!

科技创新，不断超越

东川电气接近、光电开关产品型号命名及含义说明

Product model naming and meaning description of Dongchuan electric proximity and photoelectric switch

圆柱型接近开关型号命名及含义

CHE 18 — 8 N A — A 710

CHE	外形序号	动作距离	输出形式	输出状态	产品分类
沪创电气	12：外形直径12mm 18：外形直径18mm 30：外形直径30mm	2:2mm 4:4mm 5:5mm 8:8mm 10:10mm 15:15mm	N：NPN P：PNP D：直流 Y：交流	A 常开 B 常闭 AB 一开一闭	A 接近开关 B 光电开关 C 磁性开关 D 电容式 H 霍尔开关 N 耐高温

注：有些老型号因以前按单种型号定型和命名，现无法归纳现在的基本型号及含义，所以仍然以老型号命名，若有不详之处，请联系！

光电开关型号命名及含义

CHE 18 — 10 N A — B 710

CHE	外形序号	动作距离	输出形式	输出状态	产品分类
沪创电气	12：外形直径12mm 18：外形直径18mm 30：外形直径30mm	5:5cm 10:10cm 20:20cm 30:30cm 50:50cm 100:100cm	N：NPN P：PNP D：直流 Y：交流	A 常开 B 常闭 AB 一开一闭	A 接近开关 B 光电开关 C 磁性开关 H 霍尔开关 N 耐高温

方型接近开关型号命名及含义

CHE / JL — 5 N A — A 710

CHE	外型序号	动作距离	输出形式	输出状态	产品分类
沪创电气	JL:17×17×28 JL1:25×25×38 JL2:30×30×52 JL3:40×40×52 JS:18×18×36 JPL:17×17×35 JPS:17×17×28	5:5mm 10:10mm 15:15mm 20:20mm	N：NPN P：PNP D：直流 Y：交流	A 常开 B 常闭 AB 一开一闭	A 接近开关 B 光电开关 C 磁性开关 D 电容式 H 霍尔开关 N 耐高温

霍尔传感器型号命名及含义

CHE 12 — 10 N A — H 710

CHE	外形序号	动作距离	输出形式	输出状态	产品分类
沪创电气	08：外形直径8mm 12：外形直径12mm 18：外形直径18mm	10:10mm 20:20mm	N：NPN P：PNP N11:双向 CKZS:初开自锁	A 常开 B 常闭 AB 一开一闭	A 接近开关 B 光电开关 C 磁性开关 D 电容式 H 霍尔开关 N 耐高温

圆柱形超短型型号命名及含义

CHE 18 — 8 N A — A 610

CHE	外形序号	动作距离	输出形式	输出状态	产品分类	产品长度
沪创电气	12：外形直径12mm 18：外形直径18mm 30：外形直径30mm	2:2mm 4:4mm 5:5mm 8:8mm 10:10mm 15:15mm	N：NPN P：PNP D：直流 Y：交流	A 常开 B 常闭 AB 一开一闭	A 接近开关 C 磁性开关 H 霍尔开关	610：总长42mm 螺纹32mm

通用型接近、光电开关产品型号命名及含义说明

Universal type close、photoelectric switch product model name and the meaning of that

圆柱型接近开关型号命名及含义 The columned promixity switches model named and meaning

LJ — 18 A3 — 8 — Z — B — X — A — P

- LJ：沪创电气接近开关代号
- 感应方式：无表示：为电感式；C:电容式；G:干簧管式
- 外形序号：12：外形直径12mm；18：外形直径18mm；30：外形直径30mm
- 结构形式：A3:圆柱型螺管金属外壳；A4:圆柱型螺管塑料外壳
- 动作距离：1:1mm；4:4mm；8:8mm；……；B:1-10mm；T:1-15mm；H:1-20mm；K:1-25mm
- 工作电源范围：Z:DC6-36V；Z1:DC30-65V；J:AC90-250V；J1:AC300-400V
- 输出形式：A:三线制常闭；B:三线制常开；C:四线制常开及常闭；D:二线制常闭；E:二线制常开
- 输出电流：X:NPN DC 200mA；Y:PNP DC 200mA；Z:400mA；M:500mA；W:1500mA
- 应用表示：A:耐高低温及全密封型、如AJ带继电器型为大电流输出；"口"无表示：工业配用
- 使用分类：P:配用单片机、PC机、电子计数、数码控制；"口"无表示：工业配用

注：有些老型号因以前按单种型号定型和命名，现无法归纳现在的基本型号及含义，所以仍然以老型号命名，若有不详之处，请联系！

光电开关型号命名及含义 Photoelectric switch type naming and meaning

E3F — D S 10 C 4

- E3F：外型序号
  - 例：E3F1:Φ12圆柱
  - E3F:Φ18圆柱
  - E3F3:Φ30圆柱
  - GDN15:42×75×94
  - GDN16:60×40×100
  - E3JK:50×50×18
  - E3JK:25×60×75
  - E3S:20×20×65
  - E3K80:24×50×80
- 检出方向：无表示：平行于开关光轴的顶端面；2：垂直于开关光轴的上端面
- 检出方式：D：漫反射形；R：反馈反射形；G：槽形；无字母表示：对射形
- S：检出距离单位：S：CM. 厘米；无字母表示：↓M. 米
- 10：检出距离具体数字
- 对射形：L：表示发射器↑表示；D：表示接收器↓表示
- C：检出形式：N. C4. E4:NPN 300MA输出；P: PNP 300MA输出；M:继电器触点 1A开·闭输出；Y:交流二线制
- 4：输出状态：1:常开；2:常闭；3(12):一开一闭；4:常开
- T1：带前延时；T2：带后延时；T12：带前后延时

无接触开关型号命名及含义

JWK 220 — A 10 JK

- JWK：沪创电气无触点开关代号
- 电源电压：220：AC220V电源；110：AC110V电源；36：AC36V电源；380：AC380V电源；24：DC24V电源；12：DC12V电源
- 感应面方向位置：A:表示感应方向为开关上端；D:表示感应方向为开关前端
- 动作距离：10:10mm；15:15mm；20:20mm；25:25mm；5:5mm
- 输出方式：JK:继电器触点输出如图JK；J:电压输出如图JJ；P:晶体管输出如图JA；……

方型、圆柱型接近开关型号命名及含义

TCA — 20 20 A

- 外型序号：TCA φ100×50×100mm；TCB φ140×55×140mm；TCC φ210×50×210mm；TCO φ140×55×140mm；SE φ55×35mm；HJ 80×30×120mm；SD φ48×32mm；SR φ42×24mm；HE 55×55×50mm；SK φ36×18mm；HD 50×50×45mm；HY 55×55×130mm；SC φ40×20+H24×1.5×55mm；SH φ34×82mm；SM φ48×22+H24×1.5×55mm
- 电源电压：20:表示AC90-250V；30:表示DC6-36V
- 动作距离：5：5mm；8：8mm；15：15mm；20：20mm；25：25mm；50：50mm；80：80mm；120：120mm
- 输出方式：A:DC为NPN三线常开，AC为交流二线常开；B:DC为NPN三线常闭，AC为交流二线常闭；C:PNP三线常开；D:PNP三线常闭；AL:DC二线常开；BL:DC二线常闭

LJ2系列接近开关型号命名及含义

LJ2 15 — / 2 2 1

- 外型序号：高:40 宽:38 长:80
- 无表示：直流型接近开关；L表示：交流型接近开关
- 动作距离：5：5mm；10:10mm；15:15mm；20:20mm
- 无表示：感应位置在开关顶、左、右、上方向；P表示：感应头分离型
- 无表示：输出电流为300mA；4:400mA；5:500mA；6:600mA；8:800mA
- 1:DC型为12V；2:DC型为24V；交流型(前面带L)1:AC90-250V；2:AC380V
- 接线方式：2:螺纹头引线型；1:航空插头接插型
- 感应面方向：1:前端；2:左端；3:右端；4:底端；5:上端

圆柱型接近开关型号命名及含义

P R 12 4 DN

- P：电感式接近开关
- 外形：R：圆柱型；S：角柱型；L：小方型
- 外型尺寸：8:M8×1×30mm；12:M12×1×42.5mm；18:M18×1×47mm；30:M30×1.5×58mm；PS:17×17×28mm；PL:17×17×35mm；……
- 感应距离：1:1mm；2:2mm；4:4mm；5:5mm；8:8mm；10:10mm；15:15mm；20:20mm
- DN：DN:直流NPN三线常开；DN2:直流NPN三线常闭；DP:直流PNP三线常开；DP2:直流PNP三线常闭；DO:直流二线常开；DC:直流二线常闭；AO:交流二线常开；AC:交流二线常闭；D表示电压DC6-36V；A表示电压AC90-250V

角柱型接近开关型号命名及含义

TL — Q5 M C 1

- TL：角柱型接近开关设计序号
- 感应距离：Q:最小角柱型；N:外型大点的角柱型；5:5mm 10:10mm；15:15mm 20:20mm；25:25mm 30:30mm
- M：非埋入型
- 输出方式：C :NPN三线；F :PNP三线；(B):PNP三线；D:直流二线；Y:交流二线
- 1：1:常开型输出；2:常闭型输出；1 2:常开+常闭型输出

霍尔传感器型号命名及含义

NJK — 50 02 C

- NJK：沪创电气霍尔传感器代号
- 外形尺寸：50：25mm 长；80：35mm 长；90：50mm 长
- 外形体积：01:传感器外形直径为Φ8mm；02:传感器外形直径为Φ12mm；03:传感器外形直径为Φ18mm；010:传感器外形直径为Φ10mm
- C：C或□无表示：表示NPN常开；D:NPN 常闭；A:PNP 常开；B:PNP 常闭；K:记忆；L:反锁
- 无表示为：输出电流200mA，输入电源DC6-36V 如有其它电压电流需求，直接注明。

接近开关工作原理 Promixity switch working principle

接近开关又称接近传感器。接近传感器分电感式、电容式、模拟式、霍尔式、磁性式。传感器可与PLC可编程控制器、单片机、非门电路、电子计数器、固态继电器、小型继电器等产品配套使用。

电感式接近传感器由高频振荡、检波、放大、触发及输出电路等组成。振荡器在传感器检测面产生一个交变电磁场，当金属物体接近其检测面时，金属中产生的涡流吸收了振荡器的能量，使振荡减弱以至停振。振荡器的振荡及停振这二种状态，转换为电信号通过整形放大器转换成二进制的开关信号，经功率放大后输出。

电容式接近传感器由高频振荡器和放大器等组成，由传感器的检测面与大地间构成一个电容器，参与振荡回路工作，起始处于停振状态。当物体接近其检测面对，回路的电容量发生变化，使高频振荡器振荡，振荡与停振这二种状态转换为电信号经放大器转换成二进制的开关信号。

模拟传感器(又称线性位移传感器)，当金属物体接近其检测面时，随着距离的变化，其输出一个与距离成线性关系变化的电信号，从而达到监控的目的。

霍尔传感器是一种内含霍尔集成电路的接近传感器，利用霍尔效应将磁信号的有或无转换成开关量，广泛应用与信号检测、自动控制、安全保护。

磁性传感器由舌簧管和放大器组成，当外磁场靠近传感器迫使簧片磁化而动作，再经放大电路放大，增大开关电量，以实现对外接电路的通断控制。

Promixity switches also called proximity sensors.Sensor can devided into inductive type、capacitive type、simulative type、Hall type、magnetic type.Sensor can support using of PLC programmable controller、SCM、Sr circuit 、Electronic counters、Solid-state relay、Small relays and other products.

Capacitive proximity switch are composed by High frequency concussion and amplification.Sensor detection surface and between the earth form a capacitor. participate Oscillation circuit work , starting at the stop vibration state.When the object near the surface,The circuit capacity changes,is the Oscillation of high-frequency oscillator .The two states of Oscillator- Oscillations and stopping vibration ， Converted to electrical signals through the shaping amplifier Switch into binary signals.

Simulative sensor (also known as the linear displacement sensor), when the metal object close to the detection surface.With the change of the distance,then output the singal which have linear relationship changes with the distance ,So as to achieve the purpose of monitoring.

Hall sensor is a kind of proximity sensor which inside with Hall IC.Using Hall effection convert magnetic signal on or off into switch capacity.Widely used in signal detection, automatic control and safety protection.

Magnetic sensor are composed by reed tube and amplification。When the external magnetic field near the magnetic reed sensor to force the action, and then amplified by the amplifier, increasing the switching capacity, in order to realize the on-off control of external circuits。

接近开关技术术语 Proximity switches technical terms

动作距离 action distance

动作距离是接近开关最重要的参数，它主要是取决于接近开关的感应面直径大小，感应目标的材料及环境温度也影响接近开关的动作距离；对于磁性、霍尔传感器，安装 在铁板上及磁性强度也同样影响传感器的动作距离；接近开关的动作方式有两种：轴向接近，径向接近，一般都采用轴向接近。

Operating distance is the most important parameter of the proximity switch . which mainly depends on the proximity switch sensing face diameter, sensing target material and ambient temperature also affects the proximity switch movement distance. For magnetic, Hall sensor, installed on the iron plate or on the items which with the magentic strength , also affects the movement distance;There are two actiion ways of the proximity switch : Axial close and Radial close , Generally using axial approach.

额定感应距离(Sn) Rated sensing distance (Sn)

它是一个标准值，不考虑外部环境影响。

It's a standard value without regard to the influence of external environment.

标准检测片 Standard detection sheet

检测片设计成正方形，厚度为1mm；材料为ST37号钢，表面光滑，它的边长为3×Sn。检测目标尺寸或材料的改变会衰减感应范围。

The detection sheet is designed into square type. The thickness is 1 mm, the material is ST37 with smooth surface and the side length is 3×Sn. The alternation of the detection object dimension or material will attenuate the inductive range.

有效动作距离(Sr) Effective action distance (Sr)

开关在额定工作电压及室温下(23±5℃)测得的动作距离：0.9Sn≤Sr≤1.1Sn

The action distance detected at the rated operating voltage and room temperature (23±5℃)：0.9Sn≤Sr≤1.1Sn

可用动作距离(Su) Practicable action distance (Su)

开关在允许的环境温度-25℃~+70℃下，输入电压在额定电压的85%到110%的范围内，测得的动作距离：0.9Sr≤Su≤1.1Sr

The action distance detected when the input voltage is in the range of 85% to 110% the rated voltage and the switch works at the allowable ambient temperature -25℃ to +70℃：0.9Sr≤Su≤1.1Sr

- **可靠动作距离**(Sa) Reliable action distance (Sa)

测量目标在这个动作距离内，开关的动作是可靠的：0≤Sa≤0.81Sn

When the measure object is in this action distance, the action of the switch is reliable：0≤Sa≤0.81Sn

- **重复精度**(R) Repeatability precision (R)

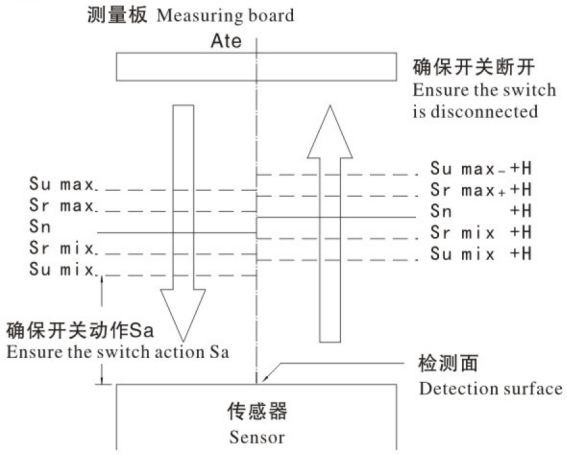
是指在环境温度(23±5℃)，相对温度为随机的，供电电压为Ue±5，在8个小时的范围内进行测量所产生的有效作用距离的变化量：R≤0.1Sn

It is the convert value of the effective action distance that is measured in 8 hours when the ambient temperature is 23±5℃, relative humidity is random and the service voltage is Ue±5：R=0.1Sn

- **确保开关断开距离** Ensure the switch breaking distance

当检测片到开关感应面的距离大于开关的额定动作距离时，确保开关断开。

When the distance between the detection sheet and the switch inductive surface is larger than the rated action distance, ensure the switch is disconnected.



- **衰减作用** Attenuation

衰减系数是指某一种材料的动作距离相对于用ST37号钢作检测片时减少了多少。对于电感式接近开关而言，检测片材料的导电性是影响衰减系数的主要参数。

Attenuation coefficient means how much the action distance of a certain kind of material is attenuated when St37 steel is used as detection sheet For inductive type proximity switch, the electrical conductivity of the detection sheet material is the main parameter affecting attenuation coefficient

电感式接近开关对部分材料衰减系数
Inductive proximity switch on the patt of the material attenuation coefficient

材料 Material	衰减系数 Attenuation Coefficient
钢 Steel	1.0
不锈钢 Stainless steel	0.85
铝 Aluminum	0.4
黄铜 Brass	0.4
铜 Bronze	0.3

电容式接近开关对部分材料衰减系数
Capacitive proximity switch on the patt of the material attenuation coefficient

材料 Material	衰减系数 Attenuation Coefficient
接地板 Earth plate	1.0
水 Water	1.0
酒精 Alcohol	0.75
陶瓷 Ceramic	0.6
PVC	0.45

- **空载电流**(IO) No-load current (IO)

是指接近开关在没有负载时所测得的电流消耗。
It means the current consumption that is measured when the proximity switch is on no-load.

- **工作电流**(IL) Operating current (IL)

是指开关在连续工作时的最大负载电流。
It means the maximum load current when the switch works continuously.

- **瞬间电流**(IK) Instantaneous current (IK)

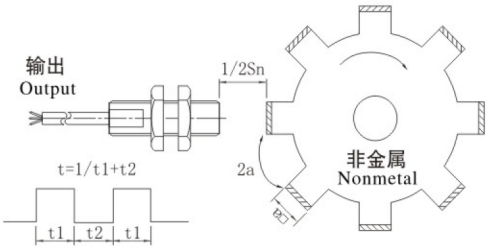
是指当开关闭合时不会损坏接近开关短时间内出现的允许电流。
It means the allowable current in a short time that doesn't ruin the switch when the switch is closed.

- **剩余电流**(IR) Residual current (IR)

是指接近开关断开时流过负载的电流。
It means the current that goes through the load when the proximity switch is disconnected.

- **工作电压**(UB) Operating voltage (UB)

是指工作电压的最大，最小值；在这个范围内接近开关可以保证安全工作。
It means the maximum and minimum of the operating voltage. In this range, the proximity switch can ensure the safe operation



- **电压降**(UD) Voltage drop (UD)

是指开关接通时在开关两端所测得的电压。
It means the voltage measured at the both ends of the switch when the switch is turned on.

- **工作频率**(F) Operating frequency (F)

是指从衰减状态转变到无衰减状态的最大变换次数，用赫芝(Hz)来表示。
It means the maximum switching times from the attenuation state to non-attenuation state,shown as Hz.

接近开关安装方法 Promixity switche installation method

圆柱型接近开关 Cylindrical type proximity switch

非屏蔽式接近开关可以获得最大的动作距离(与直径有关)；但为了防止开关周围的金属对开关影响，开关感应头必须与周围的金属保持一定的间隙。(图1)

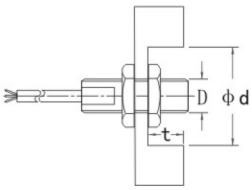
屏蔽式接近开关由于内部特殊的屏蔽作用，使侧面径向的磁场减小，感应距离大约是非屏蔽式的60%，因以可以齐平安装在金属内。(图2)

磁式传感器不受安装条件的影响，只要周围的材料不被磁化。

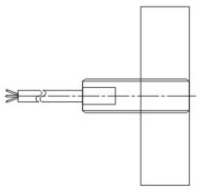
Non-screen shield type proximity switch can achieve the biggest action distance (related to the diameter); but in order to avoid the influence from the metal surrounding the switch to the switch, the switch inductive head must keep a certain space with the surrounding metal. (Chart 1)

The inside special screen shielding of the screen shield type proximity switch makes the magnetic field of side radial decrease and the sensing distance is about 60% that of the non-screen shield type, therefore it can be flush mounted inside the metal. (Chart 2)

Magnetic type sensor doesn't affected by the installation condition, as long as the surrounding materials aren't be magnetized.

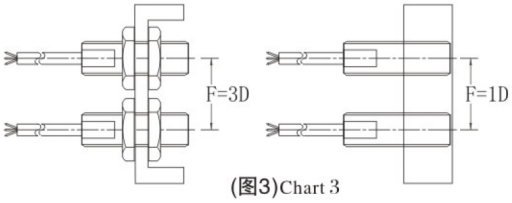


(图1)Chart 1



(图2)Chart 2

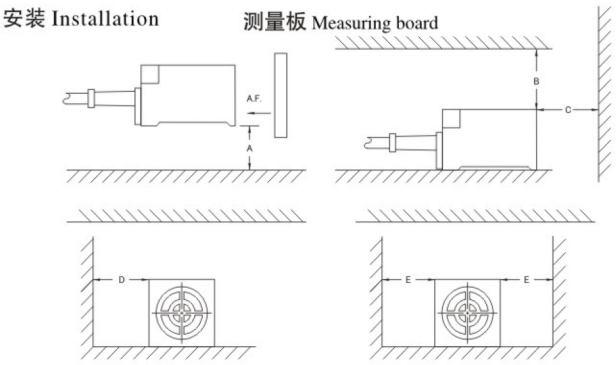
并排安装的影响(图3) Influence of parallel installation (Chart 3)
为了防止相互干扰，必须保持相互间的最小距离。
To avoid mutual interference, the minimum distance between them must be kept.



(图3)Chart 3

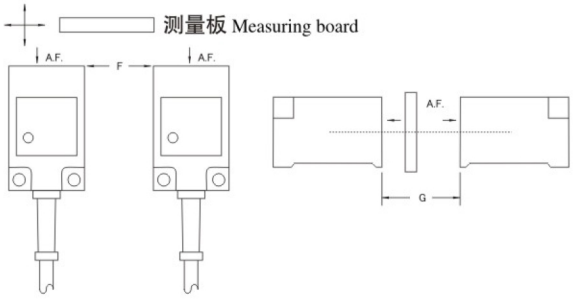
具体数据请参阅各种型号的使用说明书。
For detailed data, refer to the operation instruction of various types

角型及方型接近开关安装要求
Horn type and the square of promixity switches installation requirements



具体数据请参阅各种型号的使用说明书。
For detailed data, refer to the operation instruction of various types

并排安装的影响 Influence of parallel installation
为了防止相互干扰，必须保持相互间的最小距离。
To avoid mutual interference, the minimum distance between them must be kept.



可编程控制器DC输入模块 DC input module of programmable controller

接近开关输出方式和电气特性
Promixity switch output way and electrical characteristics

接近开关与可编程控制器的连接
Connection between proximity switch and programmable controller

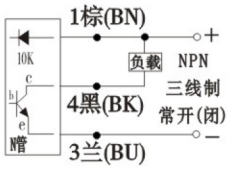
可与直流开关三线制NPN型输出
Can be connected with the proximity switch of DC switch three-wire system NPN type output

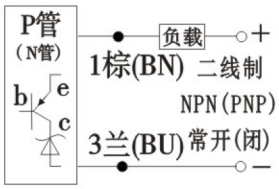
直线二线制NO或NC
DC two-wire system NO or NC

传感器必须与负载串联起来使用，绝不能直接接上电源两端，以防引起火灾，传感器有极性保护功能；在开路状态，存在有很小的漏电流；在闭路状态，开关元件上有一个较小的电压降。

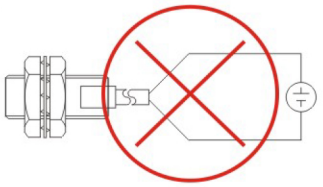
The sensor must be and load series rises use, can never directly connected to the power source, with both endsFire prevention, sensor have polarity protection function; In open state, there are small and leakageCurrent, In closed-circuit state, switch components on a smaller voltage drop.

A1图 NPN 常开或常闭





E图 PNP(NPN) 常开或常闭

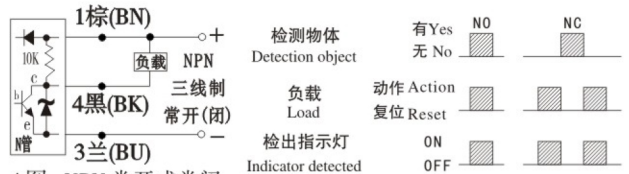


直流三线制(N,P型)NO或NC

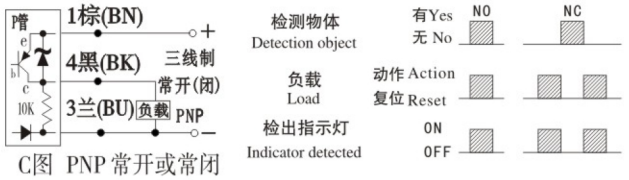
DC three-wire system (N, P type) NO or NC

开关的负载和供电电源分开连接；有极性保护功能，剩余电流可以忽略。

The load of these switches connects separately with the power supply, owning the functions of polarity, short-circuit and over-load protection. The residual current can be neglected.



A图 NPN 常开或常闭

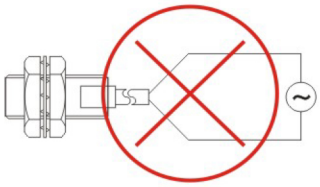


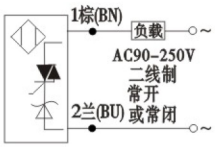
C图 PNP 常开或常闭

交流二线制NO或NC

AC two-wire system NO or NC

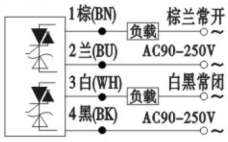
传感器必须与负载串联起来使用，绝不能直接接上电源两端，以防引起火灾；传感器在开路状态，存在有很小和漏电流；在闭路状态，开关元件上有一个较小的电压降。





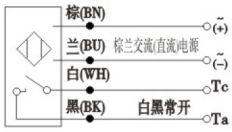
J图 交流二线制常开或常闭

交流四线制NO与NC



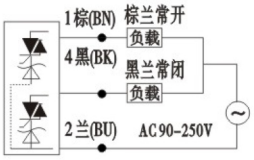
M图 交流四线常开+常闭

(交流、直流)电源继电器四线制输出接线图



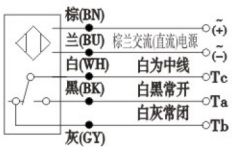
R图 四线制继电器触点输出

交流三线制NO+NC



N图 交流三线常开+常闭

(交流、直流)电源继电器五线制输出接线图



K图 五线制继电器触点输出

(交流、直流)电源继电器六线制输出接线图

L图 六线制继电器触点输出

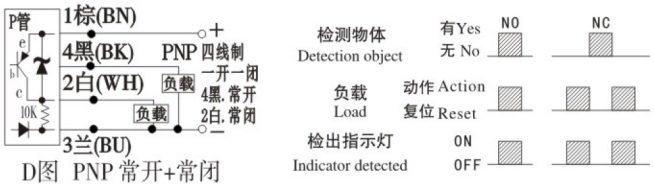
直流四线制(N,P型)NO或NC

DC four-wire system (N, P type) NO plus NC

开关可提供常开，常闭两组输出。

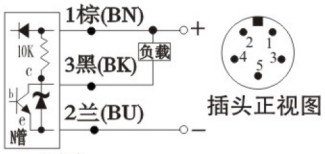
The switches can provide two groups of output NO and NC

B图 NPN 常开+常闭



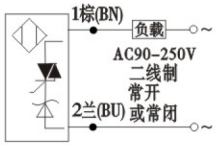
D图 PNP 常开+常闭

LJ2插头系列接线图



F图

JWK 220 -A10TJ、D10TJ接线图



J图

JWK 220 -A10J、D10J接线图

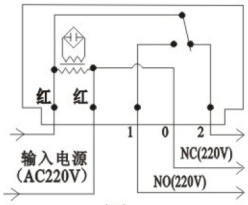


图 JJ

JWK 220 -A10JK、D10JK 接线图

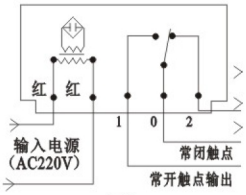


图 JK

JWK 24 -A10P、D(10\20\5)P接线图

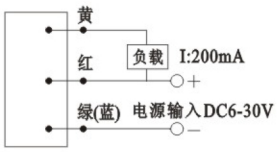


图 JA

JWKL12 - B 接线图

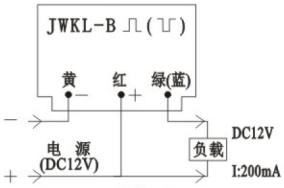


图 JB

JWK 24 -A10PJ、D(10\20\5)PJ接线图

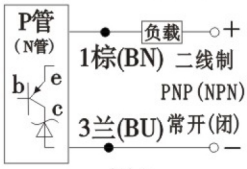


图 E

JWK 220 -A10T、D10T接线图

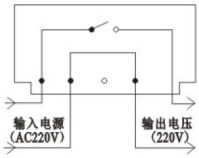
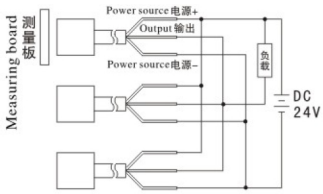


图 JC

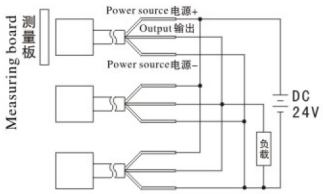
接近开关的并联、串联 Series and parallel connection of proximity switch

OR连接(NPN，PNP)型不可混杂使用， 并联接近开关OR连接，任意一个接近开关动作就可驱动负载。接近开关的数量取决于漏电流的和，只要它不影响负载动作，就可多个连接。

OR connection (NPN and PNP types can be used mixed) series When the proximity switch is OR connected, the action of any proximity switch can drive load. The quantity of the proximity switches depends on the sum of leakage current. More connections are available given that it doesn't affect the loading action.



NPN输出的OR连接
OR connection of NPN output

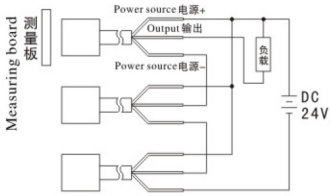


PNP输出的OR连接
OR connection of PNP output

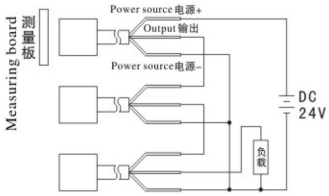
AND连接(串联) AND connection (series)

当接近开关AND连接，全部的接近开关动作时可驱动负载。接近开关的数量取决于其饱和电压的和，只要它不影响接近开关的电源电压，就可多个连接。接近开关的响应频率为各个接近开关初始复位的累加。

When the proximity switch is AND connected, the action of all proximity switches can drive load. The quantity of the proximity switches depends on the sum of saturation voltage. More connections are available given that it doesn't affect the supply voltage of the proximity switch. The response frequency of the proximity switch is the accumulation of initialized reset of various proximity switch.



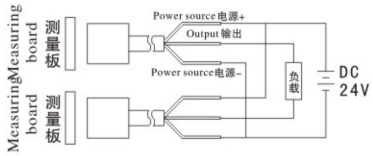
NPN输出的AND连接
NPN connection of AND output



PNP输出的AND连接
PNP connection of AND output

接近开关的并联、串联 Series and parallel connection of proximity switch

AND连接(串联)NPN，PNP混杂使用
AND connection (series) NPN, PNP mixed-use



接近开关使用注意事项 Promixity switches matters need attention

接通或断开电源时的注意事项 Cautions when connected or disconnected with the power supply

将接近开关与计数器，可编程控制器相联接时，其内部带有初始复位电路，不会有问题。请注意避免发生以下情况：

检测物体位于接近开关的检测距离附近；对于直流电压型和直流开关型接近开关，在电源接通(断开)时，时间常数出现大幅上升(下降)的情况；交流开关型接近开关在其电流接通(断开)时，有自激，噪音的情况下。

When connecting the proximity switch with the counter and the programmable controller, there isn't any problem because of the built-in initialized reset circui Please avoid the conditions mentioned below

The detection object lies around the detection distance of the proximity switch; For DC voltage type and DC switch type, when power supply is turned on (turned off), time constant rises (drops) greatly; There is self-excitation and noise when the AC switch type proximity switch is power-on (off)

电容、灯负载 Capacitor, light load

接近开关不能把电容、灯等突升电流较大的负荷作为与其直流连接的负载；请通过继电器连接或串接一限流电阻。限流电阻R设定的峰值电流在接近开关的负载电流内一限流电阻；请务必经过负载进行连接。

The proximity switch can't have the capacitor or light that has larger jumping current as the load directly connected to be connected through a relay or series connected with a current-limiting resistance. The peak cuttent set by current-limiting resistance Ris within the load cuttent of the procimity switch; Make sure to connect through load.

$$\frac{\text{电源电压V}}{\text{接近开关的最大负荷电流量mA}} \leqslant R(K\Omega)$$

电阻R的容许损失(W)

$$\frac{\text{电源电压}V^2}{\leqslant R(K\Omega)} \times 2\text{倍以上}$$

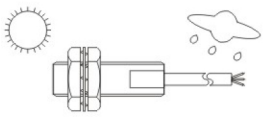
$$\frac{\text{Supply voltage V}}{\text{Peak load current value of proximity switch mA}} \leqslant R(K\Omega)$$

Allowable loss of resistance R (W)

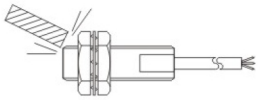
$$\frac{\text{Supply voltage } V^2}{\leqslant R(K\Omega)} \times 2 \text{ times above}$$

接近开关安装注意事项 Installation notice of proximity switch

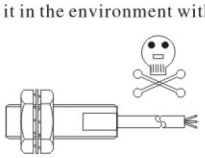
- 请不要在露天环境中使用，必要时请使用保护罩。
  Don't use it in the open air, and use a protectivecover, if necessary.



- 请不要用硬的物体撞击检测面，必要时请使用保护罩。
  Don't knock the detection surface with hard objects and use a protective cover, if necessary.

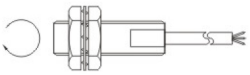


- 请不要在有腐蚀性物品的环境中使用。
  Don't use it in the environment with corrosive objects.

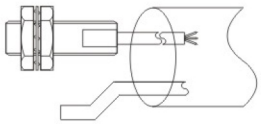


接近开关基本参数及电气特性
Promixity switches basic parameter and electrical characteristics

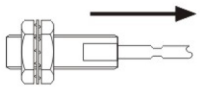
- 请不要用大力量紧固，紧固时，请使用弹垫紧固。
  Don't fasten it with a big force, but fasten it with spring washer



- 接近开关的配线应单独配金属软管，请不要与电力线，动力线一起在同一金属软管内。
  The proximity switch must be equipped individually with metal flexible pipe, and don't make it with the electric line and power line in the same metal flexible pipe



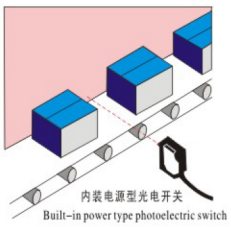
- 请不要用大力量拉伸接近开关的电源线。
  Don't stretch the power line of the proximity switch with a big force.



接近、光电开关的应用实例 Application Examples of Proximity Switch and Photoelectric Switch

1、厚纸箱检测
Thick carton detection

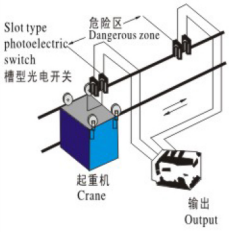
一侧不能装设传感器时，采用漫反射式光电开关
Use photoelectric switch with diffuse reflection when the sensorcan't be mounted on one side



漫反射式光电开关
Photoelectric switch with diffuse reflection

2、起重机的报警装置
Alarm device of the crane

起重机的方向判断和进入危险区的检测
The direction judgment of the crane and the detection of the approach into the dangerous zone



槽型光电开关
Slot type photoelectric shape

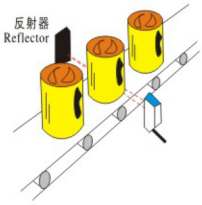
3、啤酒瓶的有无标牌检测
Tag detection of the beer bottle

用反射式光电开关检测啤酒瓶，用对射式光电开关检测有无标牌。
Check the beer bottle with the reflection type photoelectric switch, and check whether there is a tag with the correlation type photoelectric switch.

反射式光电开关，对射式光电开关
Reflection type photoelectric switch, correlation type photoelectric switch

4、镜面体的稳定检测
Steady detection of mirror surface object

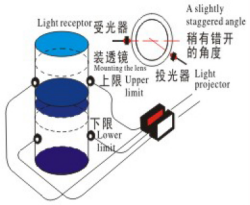
按MSR功能，镜面体也能毫无误动作地稳定检测。
It's available for mirror surface object to undertake steady detection without any misoperation in terms of function MSR.



反射式光电开关
Reflection type photoelectric switch

5、玻璃管内的水位检测
Water level detection inside glass tube

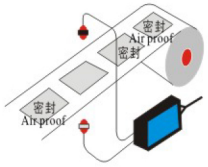
把投光器和受光器稍微错开角度安装，仅投光器上透镜是关键。水位下降时则变成遮光状态，可实现精度为1mm的水位检测。
Mount the light projector and the light receptor at a slightly staggered angle and the lens on the light projector is the key point. The water level drops, it turns into lightproof state, and the precision of water level detection is up to 1mm.



对射式光纤传感器
Correlation type optical fiber sensor

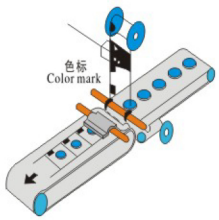
6、气密检测
Gas tight detection

衬底为半透明时，用对射式可检测。
When the substrate is translucent, undertake detection with correlation type.



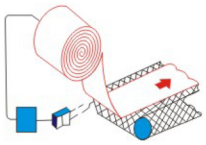
光纤对射式光电开关
Optical fiber correlation type photoelectric switch

7、检志检测
Mark detection



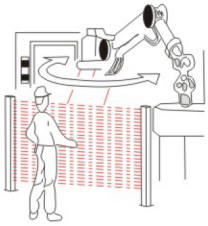
标志传感器
Mark sensor

8、斜度检测
Inclination detection



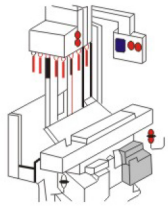
漫反射式光电开关
Photoelectric switch with diffuse reflection

9、机器人工作区安全检测
Safety detection in robot work area



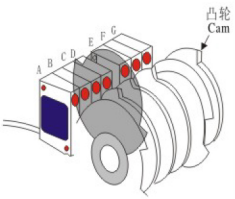
安全光幕传感器
Safety optical veiling sensor

10、机加工中心的各种位置检测
Various position detection in machining centre



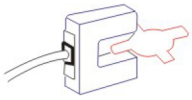
圆柱型接近开关
Cylindrical type proximity switch

11、动作时凸轮检出
Action sequence cam detection



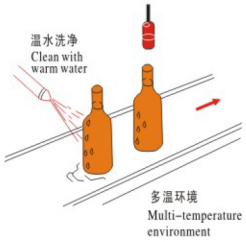
扁平型接近开关
Flat type proximity switch

12、脉冲发生器
Pulser



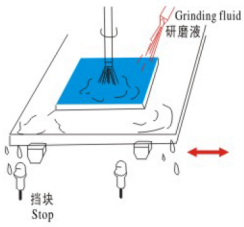
槽型接近开关
Slot type proximity switch

13、瓶盖检测
Bottle cap detection



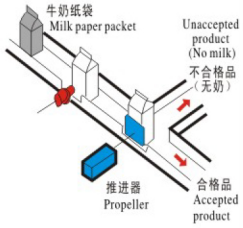
防水型接近开关
Water-proof type proximity switch

14、磨床挡块检测
Grinder stop detection



防水型接近开关
Water-proof type proximity switch

15、检测纸包装袋内有无牛奶
Detect whether there is milk inside the paper packet



电容式接近开关
Capacitive type proximity switch

圆柱型、能与国内外各相同品种直接替换 Cylinder type, can be thedirect substitution of the same type both at home and abroad

- 电源反接保护、短路保护，可直接与PLC相联接 — Power supply reversal connection protection; short-circuit protection, can directly connect with PLC
- 普通场合使用，耐环境性能中等 — Used in common places with medium environment resistance
- 红色LED显示可以检测传感器工作状态 — Red LED indicates that it's available to detect the sensor operating state
- 经济并且简单的操作 — Economic and simple operation
- 应用广泛，可替换小型开关和限位开关 — Widely used, can be the substitution of min-type switch and limiting switch
- IP67防护结构(IEC规格) — IP67 protection structure (IEC specification)
- 使用前请先阅读产品说明书的“注意事项” — Read the “Matters needing attention” of the Product Instruction before use

型号规格 Type and Specification

尺寸 Dimension				Φ4(LJ4)	M5(LJ5)	Φ6(LJ6)		M8(LJ8)		M10(LJ10)
安装方式 Mounting way				屏蔽式 Screen shield type	屏蔽式 Screen shield type	屏蔽式 Screen shield type	非屏蔽式 Non-screen shield type	屏蔽式 Screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type
型号 Type	直流型 DC type	NPN	NO	LJ4A3-1-Z/BX	LJ5A3-1-Z/BX	LJ6A3-1-Z/BX	LJ6A3-2-Z/BX	LJ8A3-1-Z/BX	LJ8A3-2-Z/BX	LJ10A3-3-Z/BX
			NC	LJ4A3-1-Z/AX	LJ5A3-1-Z/AX	LJ6A3-1-Z/AX	LJ6A3-2-Z/AX	LJ8A3-1-Z/AX	LJ8A3-2-Z/AX	LJ10A3-3-Z/AX
			NO+NC							LJ10A3-2-Z/CX
		PNP	NO	LJ4A3-1-Z/BY	LJ5A3-1-Z/BY	LJ6A3-1-Z/BY	LJ6A3-2-Z/BY	LJ8A3-1-Z/BY	LJ8A3-2-Z/BY	LJ10A3-3-Z/BY
			NC	LJ4A3-1-Z/AY	LJ5A3-1-Z/AY	LJ6A3-1-Z/AY	LJ6A3-2-Z/AY	LJ8A3-1-Z/AY	LJ8A3-2-Z/AY	LJ10A3-3-Z/AY
			NO+NC							
		二线 Two-wire	NO			LJ6A3-1-Z/EX	LJ6A3-2-Z/EX	LJ8A3-1-Z/EX	LJ8A3-2-Z/EX	LJ10A3-3-Z/EX
			NC			LJ6A3-1-Z/DX	LJ6A3-2-Z/DX	LJ8A3-1-Z/DX	LJ8A3-2-Z/DX	LJ10A3-3-Z/DX
	交流型 AC type	二线 Two-wire	NO			LJ6A3-1-J/EZ	LJ6A3-2-J/EZ	LJ8A3-1-J/EZ	LJ8A3-2-J/EZ	LJ10A3-3-J/EZ
			NC			LJ6A3-1-J/DZ	LJ6A3-2-J/DZ	LJ8A3-1-J/DZ	LJ8A3-2-J/DZ	LJ10A3-3-J/DZ
		三线 Three-wire	NO+NC							
检测距离 Detection distance				1mm±10%	1mm±10%	1.5mm±10%	2mm±10%	1.5mm±10%	2mm±10%	3mm±10%
设定距离 Set distance				0～0.7mm	0～0.7mm	0～1.2mm	0～1.6mm	0～1.2mm	0～1.6mm	0～1.6mm
标准检测物体 Standard detection object				铁5×5×1mm	铁5×5×1mm	铁8×8×1mm	铁12×12×1mm	铁8×8×1mm	铁12×12×1mm	铁8×8×1mm
响应频率 Response frequency				DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz
图例 Illustration				图33 Chart 33	图34 Chart 34	图35 Chart 35		图36 Chart 36	图37 Chart 37	图38 Chart 38

型号规格 Type and Specification

尺寸 Dimension				M12(LJ12)		M18(LJ18)		M24(LJ24)		M30(LJ30)	
安装方式 Mounting way				屏蔽式 Screen shield type	非屏蔽式 Non-screen shield type	屏蔽式 Screen shield type	非屏蔽式 Non-screen shield type	屏蔽式 Screen shield type	非屏蔽式 Non-screen shield type	屏蔽式 Screen shield type	非屏蔽式 Non-screen shield type
型号 Type	直流型 DC type	NPN	NO	LJ12A3-2-Z/BX	LJ12A3-4-Z/BX	LJ18A3-5-Z/BX	LJ18A3-8-Z/BX	LJ24A3-8-Z/BX	LJ24A3-10-Z/BX	LJ30A3-10-Z/BX	LJ30A3-15-Z/BX
			NC	LJ12A3-2-Z/AX	LJ12A3-4-Z/AX	LJ18A3-5-Z/AX	LJ18A3-8-Z/AX	LJ24A3-8-Z/AX	LJ24A3-10-Z/AX	LJ30A3-10-Z/AX	LJ30A3-15-Z/AX
			NO+NC	LJ12A3-2-Z/CX	LJ12A3-4-Z/CX	LJ18A3-5-Z/CX	LJ18A3-8-Z/CX	LJ24A3-8-Z/CX	LJ24A3-10-Z/CX	LJ30A3-10-Z/CX	LJ30A3-15-Z/CX
		PNP	NO	LJ12A3-2-Z/BY	LJ12A3-4-Z/BY	LJ18A3-5-Z/BY	LJ18A3-8-Z/BY	LJ24A3-8-Z/BY	LJ24A3-10-Z/BY	LJ30A3-10-Z/BY	LJ30A3-15-Z/BY
			NC	LJ12A3-2-Z/AY	LJ12A3-4-Z/AY	LJ18A3-5-Z/AY	LJ18A3-8-Z/AY	LJ24A3-8-Z/AY	LJ24A3-10-Z/AY	LJ30A3-10-Z/AY	LJ30A3-15-Z/AY
			NO+NC	LJ12A3-2-Z/CY	LJ12A3-4-Z/CY	LJ18A3-5-Z/CY	LJ18A3-8-Z/CY	LJ24A3-8-Z/CY	LJ24A3-10-Z/CY	LJ30A3-10-Z/CY	LJ30A3-15-Z/CY
		二线 Two-wire	NO	LJ12A3-2-Z/EX	LJ12A3-4-Z/EX	LJ18A3-5-Z/EX	LJ18A3-8-Z/EX	LJ24A3-8-Z/EX	LJ24A3-10-Z/EX	LJ30A3-10-Z/EX	LJ30A3-15-Z/EX
			NC	LJ12A3-2-Z/DX	LJ12A3-4-Z/DX	LJ18A3-5-Z/DX	LJ18A3-8-Z/DX	LJ24A3-8-Z/DX	LJ24A3-10-Z/DX	LJ30A3-10-Z/DX	LJ30A3-15-Z/DX
	交流型 AC type	二线 Two-wire	NO	LJ12A3-2-J/EZ	LJ12A3-4-J/EZ	LJ18A3-5-J/EZ	LJ18A3-8-J/EZ	LJ24A3-8-J/EZ	LJ24A3-10-J/EZ	LJ30A3-10-J/EZ	LJ30A3-15-J/EZ
			NC	LJ12A3-2-J/DZ	LJ12A3-4-J/DZ	LJ18A3-5-J/DZ	LJ18A3-8-J/DZ	LJ24A3-8-J/DZ	LJ24A3-10-J/DZ	LJ30A3-10-J/DZ	LJ30A3-15-J/DZ
		三线 Three-wire	NO+NC			LJ18A3-5-J/EDZ	LJ18A3-8-J/EDZ	LJ24A3-8-J/EDZ	LJ24A3-10-J/EDZ	LJ30A3-10-J/EDZ	LJ30A3-15-J/EDZ
检测距离 Detection distance				2mm±10%	4mm±10%	5mm±10%	8mm±10%	8mm±10%	10mm±10%	10mm±10%	15mm±10%
设定距离 Set distance				0～1.6mm	0～3.6mm	0～4mm	0～7mm	0～7mm	0～8mm	0～8mm	0～13mm
标准检测物体 Standard detection object				铁12×12×1mm	铁15×15×1mm	铁18×18×1mm	铁30×30×1mm	铁24×24×1mm	铁30×30×1mm	铁30×30×1mm	铁54×54×1mm
响应频率 Response frequency				DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz
图例 Illustration				图39 Chart 39	图40 Chart 40	图41 Chart 41	图42 Chart 42	图43 Chart 43	图44 Chart 44	图45 Chart 45	图46 Chart 46

特性参数 Characteristic parameters

滞后距离：检测距离的10%以下
检测物体：磁性金属(非磁性金属时检测距离减小)
电源电压：直流型：DC12~24V(6~36V)脉动(P-P)10%以下，
交流型：AC110~220V(36~250V)50/60Hz
消耗电流：N.P型：13mA以下，D型：0.8mA以下，A型：1.7mA以下
控制输出：N.P型：300mA以下，D型：200mA以下，A型：400mA以下
回路保护：N.P.D型：逆连接保护、浪涌吸收、负载短路保护，A型：浪涌吸收
环境温、湿度：动作时、保存时：各-30~+65℃
(不结冰、不结露)，动作时、保存时：各35~95%RH
绝缘阻抗：50MΩ以上(DC500兆欧表)充电部分与外壳间
耐电压：AC1000V 50/60Hz 1min充电部分与外壳间
温度的影响：温度范围-30~+65℃，+23℃时、±15%检测距离以内，
温度范围-25~+60℃,+23℃时、 ±10%检测距离以内
电压的影响：额定电源电压范围±15%以内、额定电源电压值时±10%
检测距离以内
保护构造：IP67(IEC规格)
材质：(外壳：黄铜镀镍) (检测面：ABS)

Delay distance：10% below of the detection distance
Detection object：Magnetic metal (the detection distance decreases when it is non-magnetic metal)
Supply voltage：DC type: DC12-24V(6-36V) Impulse (p-p) 10% below, AC type:AC110-220V (36-250V) 50/60Hz
Consumption current：N.P type: 13mA below, D type: 0.8mA below, A type: 1.7mA below
Control output：N.P type: 300mA below, D type: 200mA below, A type: 400mA below
Loop protection：N.P.D type: reversal connection protection, surge absorption, load short-circuit protection, A type: surge absorption
Ambient temperature & humidity：During operation, storage: individually -30~+65℃ (no freeze, no drew), During operation, storage: individually 35~95%RH
Insulation impedance：50MΩabove (DC500 megameter) between charging part and housing
Withstand voltage：AC1000V 50/60Hz 1min between charging part and housing
Temperature influence：Temperature range -30~+65℃, at +23℃, ±15% detection distance; temperature range -25~+60℃, at +23℃, ±10% detection distance
Voltage influence：Inside ±15% rated supply voltage range, at rated supply voltage value, inside ±10% detection distance
Protection structure：IP67 (IEC specification)
Material：（Housing：Nickel plated brass），（Detection surface：ABS）.

外形尺寸(mm) External dimension

Chart 33 图33 LJ4A3-1-□

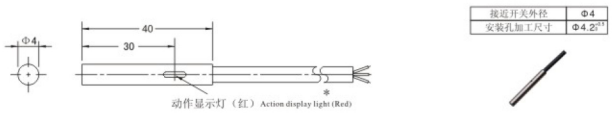


Chart 34 图34 LJ5A3-1-□

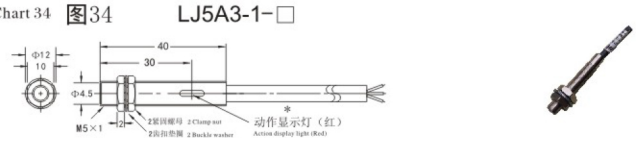


Chart 35 图35 LJ6A3-1-□

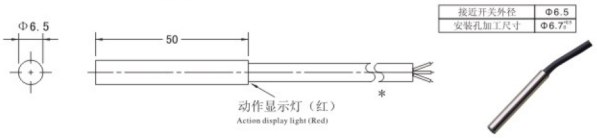


Chart 36 图36 LJ8A3-1-□

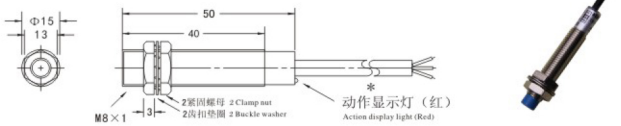


Chart 37 图37 LJ8A3-2-□

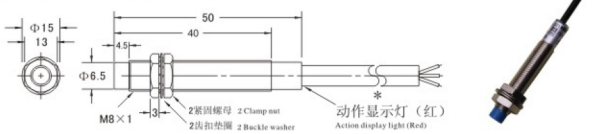


Chart 38 图38 LJ10A3-3-□

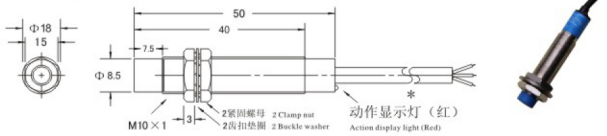


Chart 39 图39 LJ12A3-2-□

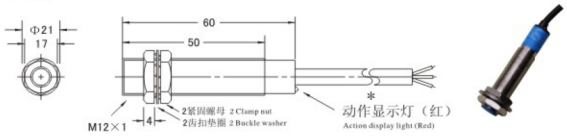


Chart 40 图40 LJ12A3-4-□

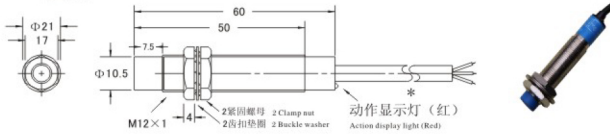


Chart 41 图41 LJ18A3-5-□

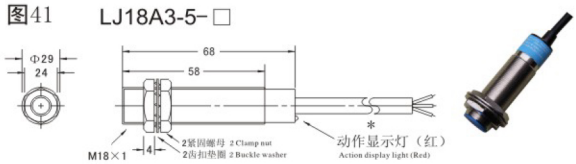


Chart 42 图42 LJ18A3-8-□

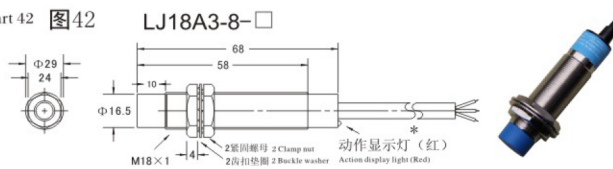


Chart 43 图43 LJ24A3-8-□

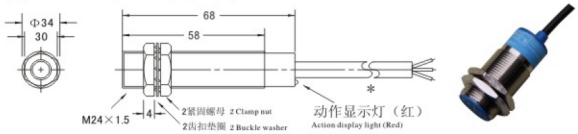


Chart 44 图44 LJ24A3-10-□

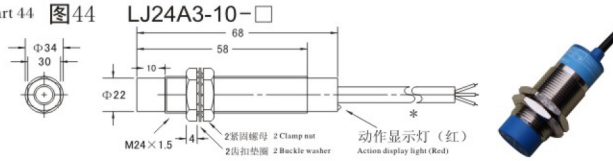


Chart 45 图45 LJ30A3-10-□

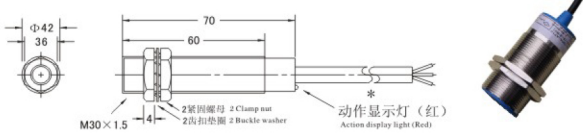
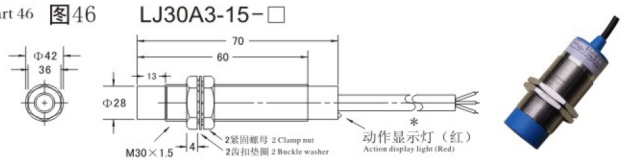


Chart 46 图46 LJ30A3-15-□



圆柱型、能与国内外各相同品种直接替换 Cylinder type, can be thedirect substitution of the same type both at home and abroad

- 电源反接保护、短路保护，可直接与PLC相联接
- 普通场合使用，耐环境性能中等
- 红色LED显示可以检测传感器工作状态
- 经济并且简单的操作
- 应用广泛，可替换小型开关和限位开关
- IP67防护结构(IEC规格)
- 使用前请先阅读产品说明书的“注意事项”

Power supply reversal connection protection; short-circuit protection, can directly connect with PLC
Used in common places with medium environment resistance
Red LED indicates that it's available to detect the sensor operating state
Economic and simple operation
Widely used, can be the substitution of min-type switch and limiting switch
IP67 protection structure (IEC specification)
Read the “Matters needing attention” of the Product Instruction before use

型号规格 Type and Specification

尺寸 Dimension				M14(LJ14)		M16(LJ16)		M20(LJ20)		M22(LJ22)	
安装方式 Mounting way				屏蔽式 Screen shield type	非屏蔽式 Non-screen shield type	屏蔽式 Screen shield type	非屏蔽式 Non-screen shield type	屏蔽式 Screen shield type	非屏蔽式 Non-screen shield type	屏蔽式 Screen shield type	非屏蔽式 Non-screen shield type
型号 Type	直流型 DC type	NPN	NO	LJ14A3-3-Z/BX	LJ14A3-5-Z/BX	LJ16A3-3-Z/BX	LJ16A3-5-Z/BX	LJ20A3-5-Z/BX	LJ20A3-8-Z/BX	LJ22A3-5-Z/BX	LJ22A3-8-Z/BX
			NC	LJ14A3-3-Z/AX	LJ14A3-5-Z/AX	LJ16A3-3-Z/AX	LJ16A3-5-Z/AX	LJ20A3-5-Z/AX	LJ20A3-8-Z/AX	LJ22A3-5-Z/AX	LJ22A3-8-Z/AX
			NO+NC	LJ14A3-3-Z/CX	LJ14A3-5-Z/CX	LJ16A3-3-Z/CX	LJ16A3-5-Z/CX	LJ20A3-5-Z/CX	LJ20A3-8-Z/CX	LJ22A3-5-Z/CX	LJ22A3-8-Z/CX
		PNP	NO	LJ14A3-3-Z/BY	LJ14A3-5-Z/BY	LJ16A3-3-Z/BY	LJ16A3-5-Z/BY	LJ20A3-5-Z/BY	LJ20A3-8-Z/BY	LJ22A3-5-Z/BY	LJ22A3-8-Z/BY
			NC	LJ14A3-3-Z/AY	LJ14A3-5-Z/AY	LJ16A3-3-Z/AY	LJ16A3-5-Z/AY	LJ20A3-5-Z/AY	LJ20A3-8-Z/AY	LJ22A3-5-Z/AY	LJ22A3-8-Z/AY
			NO+NC	LJ14A3-3-Z/CY	LJ14A3-5-Z/CY	LJ16A3-3-Z/CY	LJ16A3-5-Z/CY	LJ20A3-5-Z/CY	LJ20A3-8-Z/CY	LJ22A3-5-Z/CY	LJ22A3-8-Z/CY
		二线 Two-wire	NO	LJ14A3-3-Z/EX	LJ14A3-5-Z/EX	LJ16A3-3-Z/EX	LJ16A3-5-Z/EX	LJ20A3-5-Z/EX	LJ20A3-8-Z/EX	LJ22A3-5-Z/EX	LJ22A3-8-Z/EX
			NC	LJ14A3-3-Z/DX	LJ14A3-5-Z/DX	LJ16A3-3-Z/DX	LJ16A3-5-Z/DX	LJ20A3-5-Z/DX	LJ20A3-8-Z/DX	LJ22A3-5-Z/DX	LJ22A3-8-Z/DX
	交流型 AC type	二线 Two-wire	NO	LJ14A3-3-J/EZ	LJ14A3-5-J/EZ	LJ16A3-3-J/EZ	LJ16A3-5-J/EZ	LJ20A3-5-J/EZ	LJ20A3-8-J/EZ	LJ22A3-5-J/EZ	LJ22A3-8-J/EZ
			NC	LJ14A3-3-J/DZ	LJ14A3-5-J/DZ	LJ16A3-3-J/DZ	LJ16A3-5-J/DZ	LJ20A3-5-J/DZ	LJ20A3-8-J/DZ	LJ22A3-5-J/DZ	LJ22A3-8-J/DZ
		三线 Three-wire	NO+NC					LJ20A3-5-J/EDZ	LJ20A3-8-J/EDZ	LJ22A3-5-J/EDZ	LJ22A3-8-J/EDZ
检测距离 Detection distance				3mm±10%	5mm±10%	3mm±10%	5mm±10%	5mm±10%	8mm±10%	5mm±10%	8mm±10%
设定距离 Set distance				0～2.1mm	0～4mm	0～2.4mm	0～4mm	0～4mm	0～7mm	0～4mm	0～7mm
标准检测物体 Standard detection object				铁14×14×1mm	铁15×15×1mm	铁20×20×1mm	铁30×30×1mm	铁20×20×1mm	铁30×30×1mm	铁22×22×1mm	铁30×30×1mm
响应频率 Response frequency				DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz
图例 Illustration				图47 Chart 47	图48 Chart 48	图49 Chart 49	图50 Chart 50	图51 Chart 51	图52 Chart 52	图53 Chart 53	

型号规格 Type and Specification

尺寸 Dimension				M38(LJ38)	Φ40+M24(SC)	Φ48+M24(SM)	Φ34(SH)	Φ45(SG)
安装方式 Mounting way				非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type
型号 Type	直流型 DC type	NPN	NO	LJ38A4-18-Z/BX	SC-3020A	SM-3025A	SH-3020A	SG-3020A
			NC	LJ38A4-18-Z/AX	SC-3020B	SM-3025B	SH-3020B	SG-3020B
			NO+NC	LJ38A4-18-Z/CX	SC-3020AB	SM-3025AB	SH-3020AB	SG-3020AB
		PNP	NO	LJ38A4-18-Z/BY	SC-3020C	SM-3025C	SH-3020C	SG-3020C
			NC	LJ38A4-18-Z/AY	SC-3020D	SM-3025D	SH-3020D	SG-3020D
			NO+NC	LJ38A4-18-Z/CY	SC-3020CD	SM-3025CD	SH-3020CD	SG-3020CD
		二线 Two-wire	NO	LJ38A4-18-Z/EX	SC-3020AL	SM-3025AL	SH-3020AL	SG-3020AL
			NC	LJ38A4-18-Z/DX	SC-3020BL	SM-3025BL	SH-3020BL	SG-3020BL
	交流型 AC type	二线 Two-wire	NO	LJ38A4-18-J/EZ	SC-2020A	SM-2025A	SH-2020A	SG-2020A
			NC	LJ38A4-18-J/DZ	SC-2020B	SM-2025B	SH-2020B	SG-2020B
		三线 Three-wire	NO+NC	LJ38A4-18-J/EDZ	SC-2020AB	SM-2025AB	SH-2020AB	SG-2020AB
检测距离 Detection distance				18mm±10%	20mm±10%	25mm±10%	20mm±10%	20mm±10%
设定距离 Set distance				0～16mm	0～17mm	0～22mm	0～17mm	0～17mm
标准检测物体 Standard detection object				铁54×54×1mm	铁54×54×1mm	铁65×65×1mm	铁78×78×1mm	铁70×70×1mm
响应频率 Response frequency				DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz
图例 Illustration				图54 Chart 54	图55 Chart 55	图56 Chart 56	图57 Chart 57	图58 Chart 58

特性参数 Characteristic parameters

滞后距离：检测距离的10%以下
检测物体：磁性金属(非磁性金属时检测距离减小)
电源电压：直流型：DC12~24V(6~36V)脉动(P-P)10%以下，
交流型：AC110~220V(36~250V)50/60Hz
消耗电流：N.P型：13mA以下，D型：0.8mA以下，A型：1.7mA以下
控制输出：N.P型：300mA以下，D型：200mA以下，A型：400mA以下
回路保护：N.P.D型：逆连接保护、浪涌吸收、负载短路保护，A型：浪涌吸收
环境温、湿度：动作时、保存时：各-30~+65℃
(不结冰、不结露)，动作时、保存时：各35~95%RH
绝缘阻抗：50MΩ以上(DC500兆欧表)充电部分与外壳间
耐电压：AC1000V 50/60Hz 1min充电部分与外壳间
温度的影响：温度范围-30~+65℃，+23℃时、±15%检测距离以内，
温度范围-25~+60℃,+23℃时、 ±10%检测距离以内
电压的影响：额定电源电压范围±15%以内、额定电源电压值时±10%
检测距离以内
保护构造：IP65(IEC规格)
材质：(外壳：黄铜镀镍) (检测面：ABS)

Delay distance：10% below of the detection distance
Detection object：Magnetic metal (the detection distance decreases when it is non-magnetic metal)
Supply voltage：DC type: DC12-24V(6-36V) Impulse (p-p) 10% below, AC type:AC110-220V (36-250V) 50/60Hz
Consumption current：N.P type: 13mA below, D type: 0.8mA below, A type: 1.7mA below
Control output：N.P type: 300mA below, D type: 200mA below, A type: 400mA below
Loop protection：N.P.D type: reversal connection protection, surge absorption, load short-circuit protection, A type: surge absorption
Ambient temperature & humidity：During operation, storage: individually -30~+65℃ (no freeze, no drew), During operation, storage: individually 35~95%RH
Insulation impedance：50MΩabove (DC500 megameter) between charging part and housing
Withstand voltage：AC1000V 50/60Hz 1min between charging part and housing
Temperature influence：Temperature range -30~+65℃, at +23℃, ±15% detection distance; temperature range -25~+60℃, at +23℃, ±10% detection distance
Voltage influence：Inside ±15% rated supply voltage range, at rated supply voltage value, inside ±10% detection distance
Protection structure：IP65 (IEC specification)
Material：（Housing：Nickel plated brass），（Detection surface：ABS）.

外形尺寸(mm) External dimension

Chart 47 图47 LJ14A3-3-□

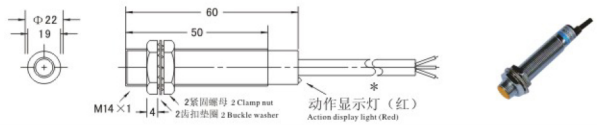


Chart 48 图48 LJ14A3-5-□

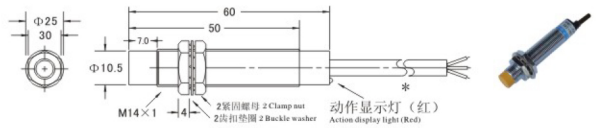


Chart 49 图49 LJ16A3-3-□

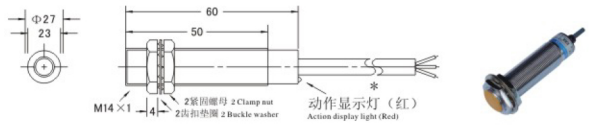


Chart 50 图50 LJ16A3-5-□

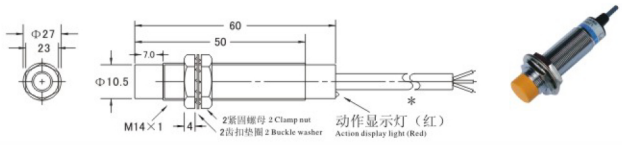


Chart 51 图51 LJ20A3-5-□

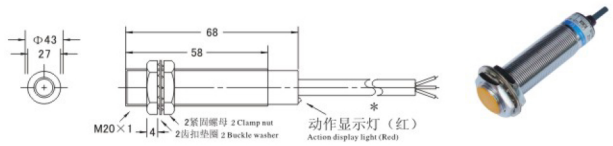


Chart 52 图52 LJ20A3-8-□

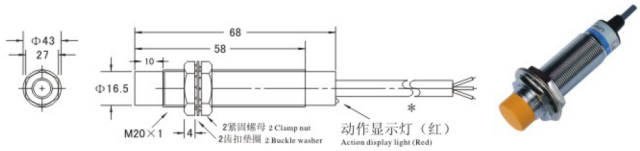


Chart 53 图53 LJ22A3-8-□

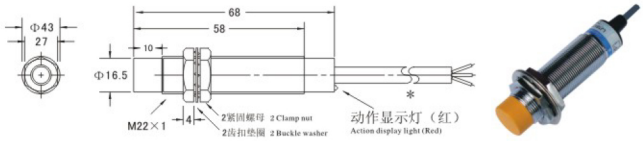


Chart 54 图54 LJ38A4-18-□

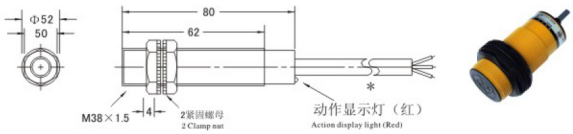


Chart 55 图55 SC-□

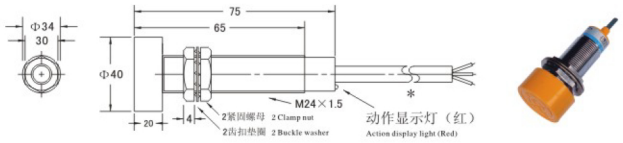


Chart 56 图56 SM-□

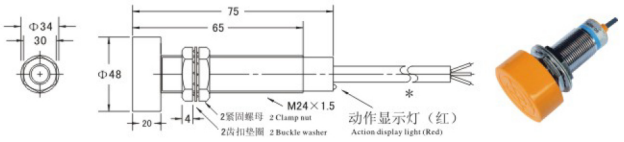


Chart 57 图57 SH-□

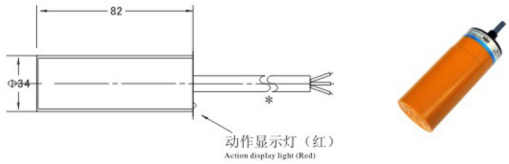
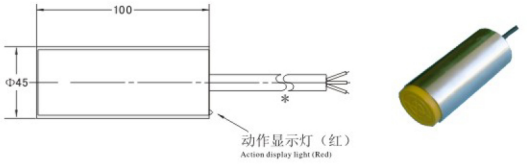


Chart 58 图58 SG-□



可视型能与欧姆龙、奥托尼克斯相同品种直接替换 Visible type, can be the direct substitution of the same types of Omron and Autonics

- 电源反接保护、短路保护，可直接与PLC相联接 — Power supply reversal connection protection; short-circuit protection, can directly connect with PLC
- 长寿命和高可靠性，耐环境性强 — Long service life, high reliability and strong resistance property to environment
- 增加外壳强度 — Countermeasure to improve the housing intensity
- IP67防护结构(IEC规格) — IP67 protection structure (IEC specification)
- 使用前请先阅读产品说明书的“注意事项” — Read the “Matters needing attention” of the Product Instruction before use

型号规格 Type and Specification

尺寸 Dimension				M8(PR08)		M12(PR12)		M18(PR18)		M30(PR30)	
安装方式 Mounting way				屏蔽式 Screen shield type	非屏蔽式 Non-screen shield type	屏蔽式 Screen shield type	非屏蔽式 Non-screen shield type	屏蔽式 Screen shield type	非屏蔽式 Non-screen shield type	屏蔽式 Screen shield type	非屏蔽式 Non-screen shield type
型号 Type	直流型 DC type	NPN	NO	PR08-1.5DN	PR08-2DN	PR12-2DN	PR12-4DN	PR18-5DN	PR18-8DN	PR30-10DN	PR30-15DN
			NC	PR08-1.5DN2	PR08-2DN2	PR12-2DN2	PR12-4DN2	PR18-5DN2	PR18-8DN2	PR30-10DN2	PR30-15DN2
			NO+NC								
		PNP	NO	PR08-1.5DP	PR08-2DP	PR12-2DP	PR12-4DP	PR18-5DP	PR18-8DP	PR30-10DP	PR30-15DP
			NC	PR08-1.5DP2	PR08-2DP2	PR12-2DP2	PR12-4DP2	PR18-5DP2	PR18-8DP2	PR30-10DP2	PR30-15DP2
			NO+NC								
		二线 Two-wire	NO	PR08-1.5DO	PR08-2DO	PR12-2DO	PR12-4DO	PR18-5DO	PR18-8DO	PR30-10DO	PR30-15DO
			NC	PR08-1.5DC	PR08-2DC	PR12-2DC	PR12-4DC	PR18-5DC	PR18-8DC	PR30-10DC	PR30-15DC
	交流型 AC type	二线 Two-wire	NO			PR12-2AO	PR12-4AO	PR18-5AO	PR18-8AO	PR30-10AO	PR30-15AO
			NC			PR12-2AC	PR12-4AC	PR18-5AC	PR18-8AC	PR30-10AC	PR30-15AC
		三线 Three-wire	NO+NC								
检测距离 Detection distance				1.5mm±10%	2mm±10%	2mm±10%	4mm±10%	5mm±10%	8mm±10%	10mm±10%	15mm±10%
设定距离 Set distance				0～1.2mm	0～1.6mm	0～1.6mm	0～3.2mm	0～4mm	0～7mm	0～8mm	0～13mm
标准检测物体 Standard detection object				铁8×8×1mm	铁12×12×1mm	铁12×12×1mm	铁15×15×1mm	铁18×18×1mm	铁30×30×1mm	铁30×30×1mm	铁54×54×1mm
响应频率 Response frequency				DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz
图例 Illustration				图17 Chart 17	图18 Chart 18	图19 Chart 19	图20 Chart 20	图21 Chart 21	图22 Chart 22	图23 Chart 23	图24 Chart 24

型号规格 Type and Specification

尺寸 Dimension				M8		M12		M18		M30	
安装方式 Mounting way				屏蔽式 Screen shield type	非屏蔽式 Non-screen shield type	屏蔽式 Screen shield type	非屏蔽式 Non-screen shield type	屏蔽式 Screen shield type	非屏蔽式 Non-screen shield type	屏蔽式 Screen shield type	非屏蔽式 Non-screen shield type
型号 Type	直流型 DC type	NPN	NO	E2E-X1R5E1	E2E-X2ME1	E2E-X2E1	E2E-X5ME1	E2E-X5E1	E2E-X10ME1	E2E-X10E1	E2E-X18ME1
			NC	E2E-X1R5E2	E2E-X2ME2	E2E-X2E2	E2E-X5ME2	E2E-X5E2	E2E-X10ME2	E2E-X10E2	E2E-X18ME2
			NO+NC								
		PNP	NO	E2E-X1R5F1	E2E-X2MF1	E2E-X2F1	E2E-X5MF1	E2E-X5F1	E2E-X10MF1	E2E-X10F1	E2E-X18MF1
			NC	E2E-X1R5F2	E2E-X2MF2	E2E-X2F2	E2E-X5MF2	E2E-X5F2	E2E-X10MF2	E2E-X10F2	E2E-X18MF2
			NO+NC								
		二线 Two-wire	NO	E2E-X2D1	E2E-X4MD1	E2E-X3D1	E2E-X8MD1	E2E-X7D1	E2E-X14MD1	E2E-X2D1	E2E-X20MD1
			NC	E2E-X2D2	E2E-X4MD2	E2E-X3D2	E2E-X8MD2	E2E-X7D2	E2E-X14MD2	E2E-X2D2	E2E-X20MD2
	交流型 AC type	二线 Two-wire	NO			E2E-X2Y1	E2E-X5MY1	E2E-X5Y1	E2E-X10MY1	E2E-X10Y1	E2E-X18MY1
			NC			E2E-X2Y2	E2E-X5MY2	E2E-X5Y2	E2E-X10MY2	E2E-X10Y2	E2E-X18MY2
		三线 Three-wire	NO+NC								
检测距离 Detection distance				1.5mm±10%	2mm±10%	2mm±10%	5mm±10%	5mm±10%	10mm±10%	10mm±10%	18mm±10%
设定距离 Set distance				0～1.2mm	0～1.6mm	0～1.6mm	0～4mm	0～4mm	0～8mm	0～8mm	0～16mm
标准检测物体 Standard detection object				铁8×8×1mm	铁12×12×1mm	铁12×12×1mm	铁15×15×1mm	铁18×18×1mm	铁30×30×1mm	铁30×30×1mm	铁54×54×1mm
响应频率 Response frequency				DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz
图例 Illustration				图25 Chart 25	图26 Chart 26	图27 Chart 27	图28 Chart 28	图29 Chart 29	图30 Chart 30	图31 Chart 31	图32 Chart 32

特性参数 Characteristic parameters

滞后距离：检测距离的10%以下
检测物体：磁性金属(非磁性金属时检测距离减小)
电源电压：直流型：DC12~24V(6~36V)脉动(P-P)10%以下，
交流型：AC110~220V(36~250V)50/60Hz
消耗电流：N.P型：13mA以下，D型：0.8mA以下，A型：1.7mA以下
控制输出：N.P型：300mA以下，D型：200mA以下，A型：400mA以下
回路保护：N.P.D型：逆连接保护、浪涌吸收、负载短路保护，A型：浪涌吸收
环境温、湿度：动作时、保存时：各-30~+65℃
(不结冰、不结露)，动作时、保存时：各35~95%RH
绝缘阻抗：50MΩ以上(DC500兆欧表)充电部分与外壳间
耐电压：AC1000V 50/60Hz 1min充电部分与外壳间
温度的影响：温度范围-30~+65℃，+23℃时、±15%检测距离以内，
温度范围-25~+60℃,+23℃时、 ±10%检测距离以内
电压的影响：额定电源电压范围±15%以内、额定电源电压值时±10%
检测距离以内
保护构造：IP67(IEC规格)
材质：(外壳：黄铜镀镍) (检测面：ABS)

Delay distance：10% below of the detection distance
Detection object：Magnetic metal (the detection distance decreases when it is non-magnetic metal)
Supply voltage：DC type: DC12-24V(6-36V) Impulse (p-p) 10% below, AC type:AC110-220V (36-250V) 50/60Hz
Consumption current：N.P type: 13mA below, D type: 0.8mA below, A type: 1.7mA below
Control output：N.P type: 300mA below, D type: 200mA below, A type: 400mA below
Loop protection：N.P.D type: reversal connection protection, surge absorption, load short-circuit protection, A type: surge absorption
Ambient temperature & humidity：During operation, storage: individually -30~+65℃ (no freeze, no drew), During operation, storage: individually 35~95%RH
Insulation impedance：50MΩabove (DC500 megameter) between charging part and housing
Withstand voltage：AC1000V 50/60Hz 1min between charging part and housing
Temperature influence：Temperature range -30~+65℃, at +23℃, ±15% detection distance; temperature range -25~+60℃, at +23℃, ±10% detection distance
Voltage influence：Inside ±15% rated supply voltage range, at rated supply voltage value, inside ±10% detection distance
Protection structure：IP67 (IEC specification)
Material：（Housing：Nickel plated brass），（Detection surface：ABS）.

外形尺寸(mm) External dimension

Chart 17 图17 PR08-1.5□

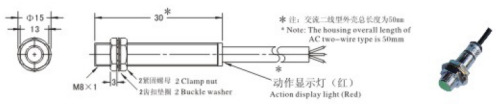


Chart 18 图18 PR08-2□

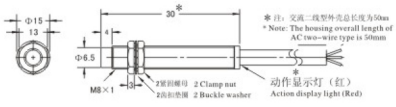


Chart 19 图19 PR12-2□

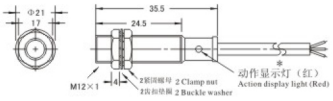


Chart 20 图20 PR12-4□

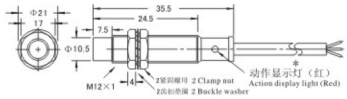


Chart 21 图21 PR18-5□

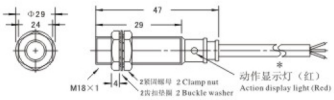


Chart 22 图22 PR18-8□

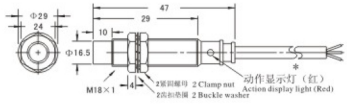


Chart 23 图23 PR30-10□

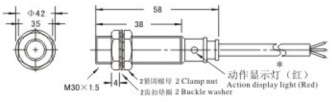


Chart 24 图24 PR30-15□

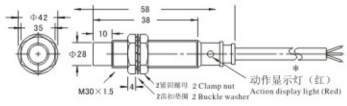


Chart 25 图25 E2E-X2D1

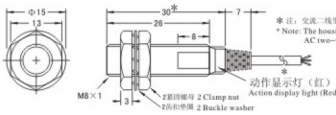


Chart 26 图26 E2E-X4MD1

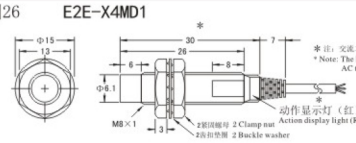


Chart 27 图27 E2E-X3D1

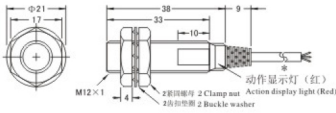


Chart 28 图28 E2E-X8MD1

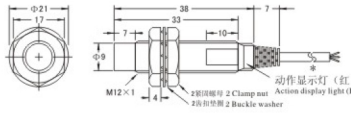


Chart 29 图29 E2E-X7D1

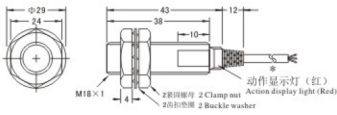


Chart 30 图30 E2E-X14MD1

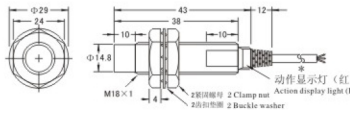


Chart 31 图31 E2E-X10D1

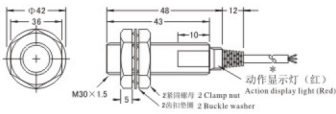
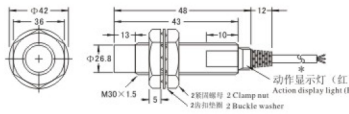


Chart 32 图32 E2E-X20MD1



全能型能与倍加福、图尔克各相同品种直接替换 All-purpose type, which can directly substitute the same type of P+F and TURCK

- 电源反接保护、短路保护，可直接与PLC相联接 — Power supply reversal connection protection; short-circuit protection, can directly connect with PLC
- 新增电流过载保护，元器件采用进口芯片 — Newly added current over-load protection; the elements are made of imported chip
- 长寿命和高可靠性，耐环境性强 — Long service life, high reliability and strong resistance property to environment
- 红色LED显示可以检测传感器工作状态 — Red LED indicates that it's available to detect the sensor operating state
- 全螺纹形，增大了安装空间；可直接用板手夹钳 — Full thread shape to enlarge the installation space; can use wrench and clamp directly
- 增加外壳强度和断线的对策 — Countermeasure to improve the housing intensity an
- IP67防护结构(IEC规格) — IP67 protection structure (IEC specification)
- 使用前请先阅读产品说明书的“注意事项” — Read the “Matters needing attention” of the Product Instruction before use

型号规格 Type and Specification

尺寸 Dimension				M8		M12		M18		M30	
安装方式 Mounting way				屏蔽式 Screen shield type	非屏蔽式 Non-screen shield type	屏蔽式 Screen shield type	非屏蔽式 Non-screen shield type	屏蔽式 Screen shield type	非屏蔽式 Non-screen shield type	屏蔽式 Screen shield type	非屏蔽式 Non-screen shield type
型号 Type	直流型 DC type	NPN	NO	Bi1.5-M8-AN6X	Ni2-M8-AN6X	Bi2-M12-AN6X	Ni4-M12-AN6X	Bi5-M18-AN6X	Ni8-M18-AN6X	Bi10-M30-AN6X	Ni15-M30-AN6X
			NC	Bi1.5-M8-RN6X	Ni2-M8-RN6X	Bi2-M12-RN6X	Ni4-M12-RN6X	Bi5-M18-RN6X	Ni8-M18-RN6X	Bi10-M30-RN6X	Ni15-M30-RN6X
			NO+NC								
		PNP	NO	Bi1.5-M8-AP6X	Ni2-M8-AP6X	Bi2-M12-AP6X	Ni4-M12-AP6X	Bi5-M18-AP6X	Ni8-M18-AP6X	Bi10-M30-AP6X	Ni15-M30-AP6X
			NC	Bi1.5-M8-RP6X	Ni2-M8-RP6X	Bi2-M12-RP6X	Ni4-M12-RP6X	Bi5-M18-RP6X	Ni8-M18-RP6X	Bi10-M30-RP6X	Ni15-M30-RP6X
			NO+NC								
		二线 Two-wire	NO	Bi1.5-M8-AD4X	Ni2-M8-AD4X	Bi2-M12-AD4X	Ni4-M12-AD4X	Bi5-M18-AD4X	Ni8-M18-AD4X	Bi10-M30-AD4X	Ni15-M30-AD4X
			NC	Bi1.5-M8-RD4X	Ni2-M8-RD4X	Bi2-M12-RD4X	Ni4-M12-RD4X	Bi5-M18-RD4X	Ni8-M18-RD4X	Bi10-M30-RD4X	Ni15-M30-RD4X
	交流型 AC type	二线 Two-wire	NO	Bi1.5-M8-AZ3X	Ni2-M8-AZ3X	Bi2-M12-AZ3X	Ni4-M12-AZ3X	Bi5-M18-AZ3X	Ni8-M18-AZ3X	Bi10-M30-AZ3X	Ni15-M30-AZ3X
			NC	Bi1.5-M82-RZ3X	Ni2-M82-RZ3X	Bi2-M12-RZ3X	Ni4-M12-RZ3X	Bi5-M18-RZ3X	Ni8-M18-RZ3X	Bi10-M30-RZ3X	Ni15-M30-RZ3X
		三线 Three-wire	NO+NC								
检测距离 Detection distance				1.5mm±10%	2mm±10%	2mm±10%	4mm±10%	5mm±10%	8mm±10%	10mm±10%	15mm±10%
设定距离 Set distance				0～1.2mm	0～1.6mm	0～1.6mm	0～3.2mm	0～4mm	0～7mm	0～8mm	0～13mm
标准检测物体 Standard detection object				铁8×8×1mm	铁12×12×1mm	铁12×12×1mm	铁15×15×1mm	铁18×18×1mm	铁30×30×1mm	铁30×30×1mm	铁54×54×1mm
响应频率 Response frequency				DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz
图例 Illustration				图1 Chart 1	图2 Chart 2	图3 Chart 3	图4 Chart 4	图5 Chart 5	图6 Chart 6	图7 Chart 7	图8 Chart 8

型号规格 Type and Specification

尺寸 Dimension				M8		M12		M18		方壳	
安装方式 Mounting way				屏蔽式 Screen shield type	非屏蔽式 Non-screen shield type	屏蔽式 Screen shield type	非屏蔽式 Non-screen shield type	屏蔽式 Screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type
型号 Type	直流型 DC type	NPN	NO	Bi1.5-M8-AN6X-H1141	Ni2-M8-AN6X-H1141	Bi2-M12-AN6X-H1141	Ni4-M12-AN6X-H1141	Bi5-M18-AN6X-H1141	Ni8-M18-AN6X-H1141	Ni10-Q25-AN6X	Ni15-Q30-AN6X
			NC	Bi1.5-M8-RN6X-H1141	Ni2-M8-RN6X-H1141	Bi2-M12-RN6X-H1141	Ni4-M12-RN6X-H1141	Bi5-M18-RN6X-H1141	Ni8-M18-RN6X-H1141	Ni10-Q25-RN6X	Ni15-Q30-RN6X
			NO+NC								
		PNP	NO	Bi1.5-M8-AP6X-H1141	Ni2-M8-AP6X-H1141	Bi2-M12-AP6X-H1141	Ni4-M12-AP6X-H1141	Bi5-M18-AP6X-H1141	Ni8-M18-AP6X-H1141	Ni10-Q25-AP6X	Ni15-Q30-AP6X
			NC	Bi1.5-M8-RP6X-H1141	Ni2-M8-RP6X-H1141	Bi2-M12-RP6X-H1141	Ni4-M12-RP6X-H1141	Bi5-M18-RP6X-H1141	Ni8-M18-RP6X-H1141	Ni10-Q25-RP6X	Ni15-Q30-RP6X
			NO+NC								
		二线 Two-wire	NO	Bi1.5-M8-AD4X-H1141	Ni2-M8-AD4X-H1141	Bi2-M12-AD4X-H1141	Ni4-M12-AD4X-H1141	Bi5-M18-AD4X-H1141	Ni8-M18-AD4X-H1141	Ni10-Q25-AD4X	Ni15-Q30-AD4X
			NC	Bi1.5-M8-RD4X-H1141	Ni2-M8-RD4X-H1141	Bi2-M12-RD4X-H1141	Ni4-M12-RD4X-H1141	Bi5-M18-RD4X-H1141	Ni8-M18-RD4X-H1141	Ni10-Q25-RD4X	Ni15-Q30-RD4X
	交流型 AC type	二线 Two-wire	NO	Bi1.5-M8-AZ3X-H1141	Ni2-M8-AZ3X-H1141	Bi2-M12-AZ3X-H1141	Ni4-M12-AZ3X-H1141	Bi5-M18-AZ3X-H1141	Ni8-M18-AZ3X-H1141	Ni10-Q25-AZ3X	Ni15-Q30-AZ3X
			NC	Bi1.5-M8-RZ3X-H1141	Ni2-M8-RZ3X-H1141	Bi2-M12-RZ3X-H1141	Ni4-M12-RZ3X-H1141	Bi5-M18-RZ3X-H1141	Ni8-M18-RZ3X-H1141	Ni10-Q25-RZ3X	Ni15-Q30-RZ3X
		三线 Three-wire	NO+NC								
检测距离 Detection distance				1.5mm±10%	2mm±10%	2mm±10%	4mm±10%	5mm±10%	8mm±10%	10mm±10%	15mm±10%
设定距离 Set distance				0～1.2mm	0～1.6mm	0～1.6mm	0～3.2mm	0～4mm	0～7mm	0～8mm	0～13mm
标准检测物体 Standard detection object				铁8×8×1mm	铁12×12×1mm	铁12×12×1mm	铁15×15×1mm	铁18×18×1mm	铁30×30×1mm	铁30×30×1mm	铁50×50×1mm
响应频率 Response frequency				DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz
图例 Illustration				图9 Chart 9	图10 Chart 10	图11 Chart 11	图12 Chart 12	图13 Chart 13	图14 Chart 14	图15 Chart 15	图16 Chart 16

特性参数 Characteristic parameters

滞后距离：检测距离的10%以下
检测物体：磁性金属(非磁性金属时检测距离减小)
电源电压：直流型：DC12~24V(6~36V)脉动(P-P)10%以下，
交流型：AC110~220V(36~250V)50/60Hz
消耗电流：N.P型：13mA以下，D型：0.8mA以下，A型：1.7mA以下
控制输出：N.P型：300mA以下，D型：200mA以下，A型：400mA以下
回路保护：N.P.D型：逆连接保护、浪涌吸收、负载短路保护，A型：浪涌吸收
环境温、湿度：动作时、保存时：各-30~+65℃
(不结冰、不结露)，动作时、保存时：各35~95%RH
绝缘阻抗：50MΩ以上(DC500兆欧表)充电部分与外壳间
耐电压：AC1000V 50/60Hz 1min充电部分与外壳间
温度的影响：温度范围-30~+65℃，+23℃时、±15%检测距离以内，
温度范围-25~+60℃,+23℃时、 ±10%检测距离以内
电压的影响：额定电源电压范围±15%以内、额定电源电压值时±10%
检测距离以内
保护构造：IP67(IEC规格)
材质：(外壳：黄铜镀镍) (检测面：ABS)

Delay distance：10% below of the detection distance
Detection object：Magnetic metal (the detection distance decreases when it is non-magnetic metal)
Supply voltage：DC type: DC12-24V(6-36V) Impulse (p-p) 10% below, AC type:AC110-220V (36-250V) 50/60Hz
Consumption current：N.P type: 13mA below, D type: 0.8mA below, A type: 1.7mA below
Control output：N.P type: 300mA below, D type: 200mA below, A type: 400mA below
Loop protection：N.P.D type: reversal connection protection, surge absorption, load short-circuit protection, A type: surge absorption
Ambient temperature & humidity：During operation, storage: individually -30~+65℃ (no freeze, no drew), During operation, storage: individually 35~95%RH
Insulation impedance：50MΩabove (DC500 megameter) between charging part and housing
Withstand voltage：AC1000V 50/60Hz 1min between charging part and housing
Temperature influence：Temperature range -30~+65℃, at +23℃, ±15% detection distance; temperature range -25~+60℃, at +23℃, ±10% detection distance
Voltage influence：Inside ±15% rated supply voltage range, at rated supply voltage value, inside ±10% detection distance
Protection structure：IP67 (IEC specification)
Material：（Housing：Nickel plated brass），（Detection surface：ABS）.

外形尺寸(mm) External dimension

Chart 1 图1 Bi1.5-M8-□

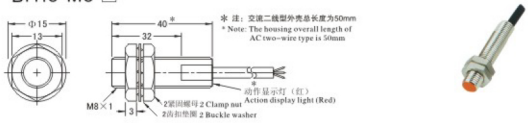


Chart 2 图2 Ni2-M8-□

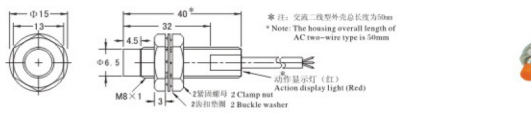


Chart 3 图3 Bi2-M12-□

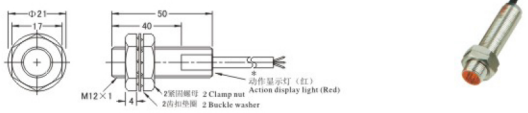


Chart 4 图4 Ni4-M12-□

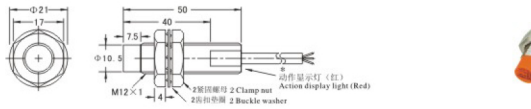


Chart 5 图5 Bi5-M18-□

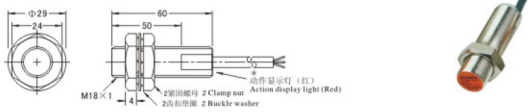


Chart 6 图6 Ni8-M18-□

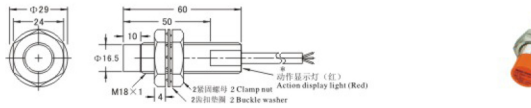


Chart 7 图7 Bi10-M30-□

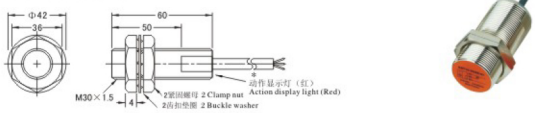


Chart 8 图8 Ni15-M30-□

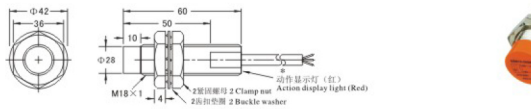


Chart 9 图9 Bi1.5-M8-□-H1141

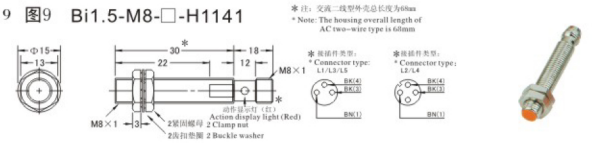


Chart 10 图10 Ni2-M8-□-H1141

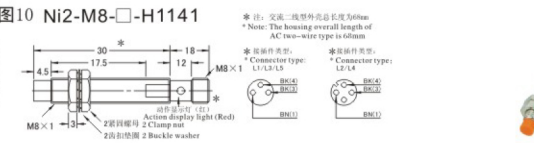


Chart 11 图11 Bi2-M12-□-H1141

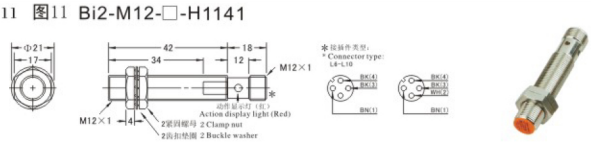


Chart 12 图12 Ni4-M12-□-H1141

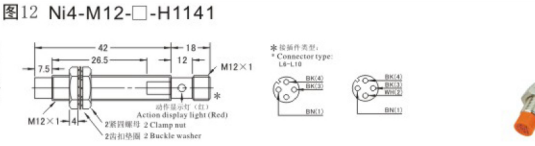


Chart 13 图13 Bi5-M18-□-H1141

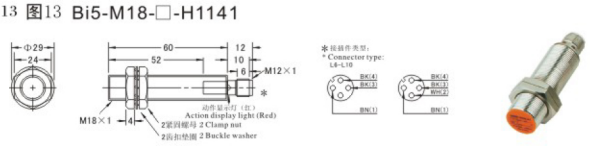


Chart 14 图14 Ni8-M18-□-H1141

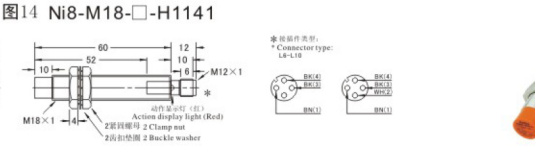


Chart 15 图15 Ni10-Q25-□

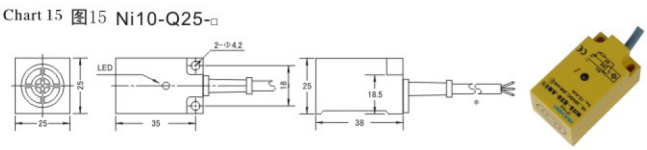
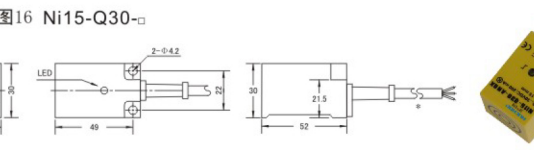


Chart 16 图16 Ni15-Q30-□



角型能与国内外各相同品种直接替换 Horn type, can be thedirect substitution of the same type both at home and abroad

- 电源反接保护、短路保护，可直接与PLC相联接 — Power supply reversal connection protection; short-circuit protection, can directly connect with PLC
- 经济并且简单的操作 — Economic and simple operation
- 长寿命和高可靠性，耐环境性强 — Long service life, high reliability and strong resistance property to environment
- 红色LED显示可以检测传感器工作状态 — Red LED indicates that it's available to detect the sensor operating state
- IP67防护结构(IEC规格) — IP67 protection structure (IEC specification)
- 使用前请先阅读产品说明书的“注意事项” — Read the “Matters needing attention” of the Product Instruction before use

型号规格 Type and Specification

尺寸 Dimension				17×17×28	25×25×38	30×30×52	35×35×52	40×40×52	18×18×36	17×17×28	17×17×28
安装方式 Mounting way				非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type
型号 Type	直流型 DC type	NPN	NO	TL-Q5MC1	TL-N5ME1	TL-N10ME1	TL-N15ME1	TL-N20ME1	PS17-5DN	PS-05N	PS-08N
			NC	TL-Q5MC2	TL-N5ME2	TL-N10ME2	TL-N15ME2	TL-N20ME2	PS17-5DN2	PS-05N2	PS-08N2
			NO+NC						PS17-5DN3		
		PNP	NO	TL-Q5MF1	TL-N5MF1	TL-N10MF1	TL-N15MF1	TL-N20MF1	PS17-5DP	PS-05P	PS-08P
			NC	TL-Q5MF2	TL-N5MF2	TL-N10MF2	TL-N15MF2	TL-N20MF2	PS17-5DP2	PS-05P2	PS-08P2
			NO+NC						PS17-5DP3		
		二线 Two-wire	NO	TL-Q5MD1	TL-N5MD1	TL-N10MD1	TL-N15MD1	TL-N20MD1	PS17-5D1	PS-05D1	PS-08D1
			NC	TL-Q5MD2	TL-N5MD2	TL-N10MD2	TL-N15MD2	TL-N20MD2	PS17-5D2	PS-05D2	PS-08D2
	交流型 AC type	二线 Two-wire	NO	TL-Q5MY1	TL-N5MY1	TL-N10MY1	TL-N15MY1	TL-N20MY1	PS17-5Y1	PS-05Y1	PS-08Y1
			NC	TL-Q5MY2	TL-N5MY2	TL-N10MY2	TL-N15MY2	TL-N20MY2	PS17-5Y2	PS-05Y2	PS-08Y2
		三线 Three-wire	NO+NC								
检测距离 Detection distance				5mm±10%	5mm±10%	10mm±10%	15mm±10%	20mm±10%	5mm±10%	5mm±10%	8mm±10%
设定距离 Set distance				0～4mm	0～4mm	0～8mm	0～13mm	0～17mm	0~4mm	0～4mm	0～7mm
标准检测物体 Standard detection object				铁18×18×1mm	铁25×25×1mm	铁45×45×1mm	铁45×45×1mm	铁50×50×1mm	铁18×18×1mm	铁18×18×1mm	铁18×18×1mm
响应频率 Response frequency				DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz
图例 Illustration				图59 Chatr59	图60 Chatr60	图61 Chatr61	—	图62 Chatr62	图63 Chatr63	图64 Chatr64	

型号规格 Type and Specification

尺寸 Dimension				17×17×35	17×17×35	18×18×36	18×18×34	17×17×29	20×20×36	30×30×52	40×40×52
安装方式 Mounting way				非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type
型号 Type	直流型 DC type	NPN	NO	PL-05N	PL-08N	SN04-N	SN05-N	SN06-N	SN07-N	SN10-N	SN20-N
			NC	PL-05N2	PL-08N2	SN04-N2	SN05-N2	SN06-N2	SN07-N2	SN10-N2	SN20-N2
			NO+NC								
		PNP	NO	PL-05P	PL-08P	SN04-P	SN05-P	SN06-P	SN07-P	SN10-P	SN20-P
			NC	PL-05P2	PL-08P2	SN04-P2	SN05-P2	SN06-P2	SN07-P2	SN10-P2	SN20-P2
			NO+NC								
		二线 Two-wire	NO	PL-05D1	PL-08D1	SN04-D1	SN05-D1	SN06-D1	SN07-D1	SN10-D1	SN20-D1
			NC	PL-05D2	PL-08D2	SN04-D2	SN05-D2	SN06-D2	SN07-D2	SN10-D2	SN20-D2
	交流型 AC type	二线 Two-wire	NO	PL-05Y1	PL-08Y1	SN04-Y1	SN05-Y1	SN06-Y1	SN07-Y1	SN10-Y1	SN20-Y1
			NC	PL-05Y2	PL-08Y2	SN04-Y2	SN05-Y2	SN06-Y2	SN07-Y2	SN10-Y2	SN20-Y2
		三线 Three-wire	NO+NC								
检测距离 Detection distance				5mm±10%	8mm±10%	5mm±10%	5mm±10%	5mm±10%	8mm±10%	10mm±10%	20mm±10%
设定距离 Set distance				0～4mm	0～7mm	0~4mm	0~4mm	0~4mm	0~7mm	0~8mm	0~17mm
标准检测物体 Standard detection object				铁18×18×1mm	铁18×18×1mm	铁18×18×1mm	铁18×18×1mm	铁18×18×1mm	铁18×18×1mm	铁45×45×1mm	铁50×50×1mm
响应频率 Response frequency				DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz
图例 Illustration				图65 Chatr65		图66 Chatr66	图67 Chatr67	—	—	—	—

特性参数 Characteristic parameters

滞后距离：检测距离的10%以下
检测物体：磁性金属(非磁性金属时检测距离减小)
电源电压：直流型：DC12~24V(6~36V)脉动(P-P)10%以下，
交流型：AC110~220V(36~250V)50/60Hz
消耗电流：N.P型：13mA以下，D型：0.8mA以下，A型：1.7mA以下
控制输出：N.P型：300mA以下，D型：200mA以下，A型：400mA以下
回路保护：N.P.D型：逆连接保护、浪涌吸收、负载短路保护，A型：浪涌吸收
环境温、湿度：动作时、保存时：各-30~+65℃
(不结冰、不结露)，动作时、保存时：各35~95%RH
绝缘阻抗：50MΩ以上(DC500兆欧表)充电部分与外壳间
耐电压：AC1000V 50/60Hz 1min充电部分与外壳间
温度的影响：温度范围-30~+65℃，+23℃时、±15%检测距离以内，
温度范围-25~+60℃,+23℃时、 ±10%检测距离以内
电压的影响：额定电源电压范围±15%以内、额定电源电压值时±10%
检测距离以内
保护构造：IP67(IEC规格)
材质：(外壳：ABS) (检测面：ABS)

Delay distance：10% below of the detection distance
Detection object：Magnetic metal (the detection distance decreases when it is non-magnetic metal)
Supply voltage：DC type: DC12-24V(6-36V) Impulse (p-p) 10% below, AC type:AC110-220V (36-250V) 50/60Hz
Consumption current：N.P type: 13mA below, D type: 0.8mA below, A type: 1.7mA below
Control output：N.P type: 300mA below, D type: 200mA below, A type: 400mA below
Loop protection：N.P.D type: reversal connection protection, surge absorption, load short-circuit protection, A type: surge absorption
Ambient temperature & humidity：During operation, storage: individually -30~+65℃ (no freeze, no drew), During operation, storage: individually 35~95%RH
Insulation impedance：50MΩabove (DC500 megameter) between charging part and housing
Withstand voltage：AC1000V 50/60Hz 1min between charging part and housing
Temperature influence：Temperature range -30~+65℃, at +23℃, ±15% detection distance; temperature range -25~+60℃, at +23℃, ±10% detection distance
Voltage influence：Inside ±15% rated supply voltage range, at rated supply voltage value, inside ±10% detection distance
Protection structure：IP67 (IEC specification)
Material：（Housing：ABS），（Detection surface：ABS）.

外形尺寸(mm) External dimension

Chart59 图59 TL-Q5M□

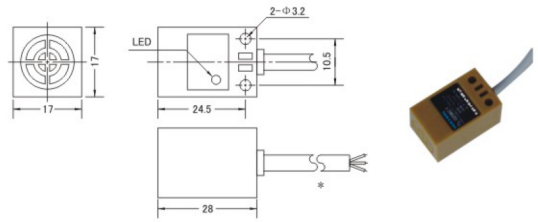


Chart60 图60 TL-N5M□

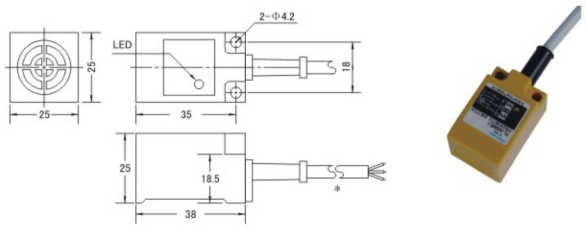


Chart61 图61 TL-N10M□

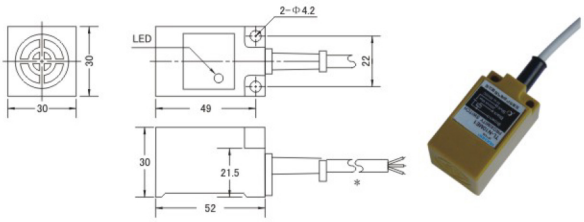


Chart62 图62 TL-N20M□

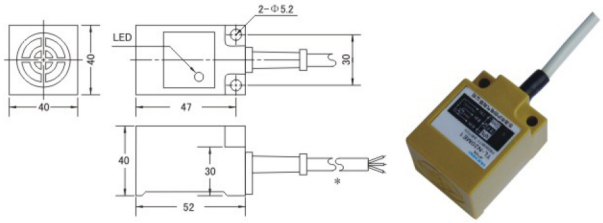


Chart63 图63 PS17-5□

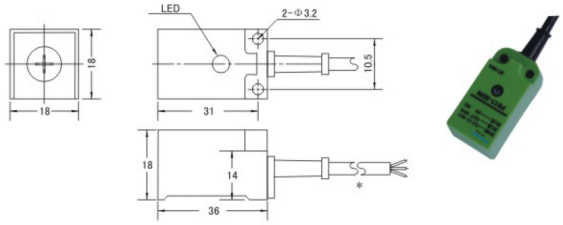


Chart64 图64 PS-05(8)□

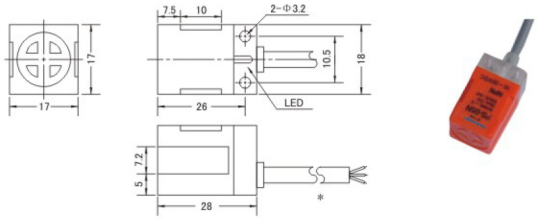


Chart65 图65 PL-05(8)□

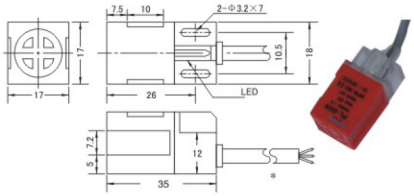


Chart66 图66 SN04-□

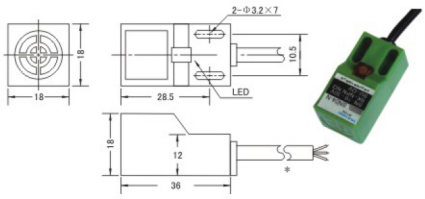
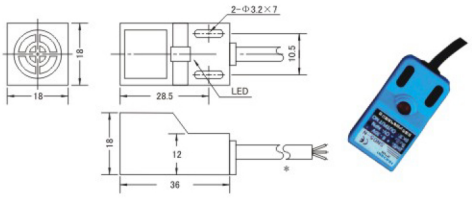


Chart67 图67 SN05-□



角型 方型能与国内外各相同品种直接替换 Horn type and square type, can be thedirect substitution of the same type both at home and abroad

- 电源反接保护、短路保护，可直接与PLC相联接 — Power supply reversal connection protection; short-circuit protection, can directly connect with PLC
- 经济并且简单的操作 — Economic and simple operation
- 长寿命和高可靠性，耐环境性强 — Long service life, high reliability and strong resistance property to environment
- 红色LED显示可以检测传感器工作状态 — Red LED indicates that it's available to detect the sensor operating state
- IP67防护结构(IEC规格) — IP67 protection structure (IEC specification)
- 使用前请先阅读产品说明书的“注意事项” — Read the “Matters needing attention” of the Product Instruction before use

型号规格 Type and Specification

尺寸 Dimension				12×12×45	25×25×39	30×30×53		40×40×53	30×18×10	50×25×10	45×30×12
安装方式 Mounting way				非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type		非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type
型号 Type	直流型 DC type	NPN	NO	PS12-4DN	PSN25-5DN	PSN30-10DN	PSN30-15DN	PSN40-20DN	GKB-M0524NA	TL-W5E1	TL-W7E1
			NC	PS12-4DN2	PSN25-5DN2	PSN30-10DN2	PSN30-15DN2	PSN40-20DN2	GKB-M0524NB	TL-W5E2	TL-W7E2
			NO+NC		PSN25-5DN3	PSN30-10DN3	PSN30-15DN3	PSN40-20DN3			
		PNP	NO	PS12-4DP	PSN25-5DP	PSN30-10DP	PSN30-15DP	PSN40-20DP	GKB-M0524PA	TL-W5F1	TL-W7F1
			NC	PS12-4DP2	PSN25-5DP2	PSN30-10DP2	PSN30-15DP2	PSN40-20DP2	GKB-M0524PB	TL-W5F2	TL-W7F2
			NO+NC		PSN25-5DP3	PSN30-10DP3	PSN30-15DP3	PSN40-20DP3			
		二线 Two-wire	NO	PS12-4DO	PSN25-5DO	PSN30-10DO	PSN30-15DO	PSN40-20DO	GKB-M0524D1	TL-W5D1	TL-W7D1
			NC	PS12-4DC	PSN25-5DC	PSN30-10DC	PSN30-15DC	PSN40-20DC	GKB-M0524D2	TL-W5D2	TL-W7D2
	交流型 AC type	二线 Two-wire	NO	PS12-4AO	PSN25-5AO	PSN30-10AO	PSN30-15AO	PSN40-20AO		TL-W5A1	TL-W7A1
			NC	PS12-4AC	PSN25-5AC	PSN30-10AC	PSN30-15AC	PSN40-20AC		TL-W5A2	TL-W7A2
		三线 Three-wire	NO+NC								
检测距离 Detection distance				4mm±10%	5mm±10%	10mm±10%	15mm±10%	20mm±10%	5mm±10%	5mm±10%	7mm±10%
设定距离 Set distance				0~3.6mm	0~4mm	0~8mm	0~13mm	0~17mm	0~4mm	0~4mm	0~5mm
标准检测物体 Standard detection object				铁18×18×1mm	铁30×30×1mm	铁45×45×1mm	铁45×45×1mm	铁50×50×1mm	铁18×18×1mm	铁18×18×1mm	铁25×25×1mm
响应频率 Response frequency				DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz
图例 Illustration				图68 Chatr68	图69 Chatr69	图70 Chatr70		图71 Chatr71	图72 Chatr72	图73 Chatr73	图74 Chatr74

型号规格 Type and Specification

尺寸 Dimension				120×80×30	40×26×12		60×60×12	86×29×18	96×26×17	40×40×68	55×39×128
安装方式 Mounting way				非屏蔽式 Non-screen shield type	屏蔽式 screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type
型号 Type	直流型 DC type	NPN	NO	HJ-3050A	GN-0224NA	GN-0424NA	ST-3NK-F	TK-T5E1	TC-T5E1	JKD-1(正)	
			NC	HJ-3050B	GN-0224NB	GN-0424NB	ST-3NH-F	TK-T5E2	TC-T5E2	JKD-1(负)	
			NO+NC	HJ-3050AB			ST-4NKH-F	TK-T5E3	TC-T5E3		
		PNP	NO	HJ-3050C	GN-0224PA	GN-0424PA	ST-3PK-F	TK-T5F1	TC-T5F1		
			NC	HJ-3050D	GN-0224PB	GN-0424PB	ST-3PH-F	TK-T5F2	TC-T5F2		
			NO+NC	HJ-3050CD			ST-4PKH-F	TK-T5F3	TC-T5F3		
		二线 Two-wire	NO	HJ-3050AL	GN-0224LA	GN-0424LA	ST-2K-F	TK-T5D1	TC-T5D1		
			NC	HJ-3050BL	GN-0224LB	GN-0424LB	ST-2H-F	TK-T5D2	TC-T5D2		
	交流型 AC type	二线 Two-wire	NO	HJ-2050A	GN-0222KA	GN-0422KA	ST-2K-G	TK-T5A1	TC-T5A1		
			NC	HJ-2050B	GN-0222KB	GN-0422KB	ST-2H-G	TK-T5A2	TC-T5A2		
		三线 Three-wire	NO+NC	HJ-2050AB							3SG3266-1BR86
检测距离 Detection distance				50mm±10%	2mm±10%	4mm±10%	5mm±10%	5mm±10%	5mm±10%	10mm±10%	30mm±10%
设定距离 Set distance				0~40mm	0~1.6mm	0~3.6mm	0~4mm	0~4mm	0~4mm	0~8mm	0~25mm
标准检测物体 Standard detection object				铁100×100×2mm	铁12×12×1mm	铁18×18×1mm	铁18×18×1mm	铁18×18×1mm	铁18×18×1mm	铁45×45×1mm	铁60×60×1mm
响应频率 Response frequency				DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz
图例 Illustration				图75 Chatr75	图76 Chatr76		图77 Chatr77	图78 Chatr78	图79 Chatr79	图80 Chatr80	图81 Chatr71

特性参数 Characteristic parameters

滞后距离：检测距离的10%以下
检测物体：磁性金属(非磁性金属时检测距离减小)
电源电压：直流型：DC12~24V(6~36V)脉动(P-P)10%以下，
交流型：AC110~220V(36~250V)50/60Hz
消耗电流：N.P型：13mA以下，D型：0.8mA以下，A型：1.7mA以下
控制输出：N.P型：300mA以下，D型：200mA以下，A型：400mA以下
回路保护：N.P.D型：逆连接保护、浪涌吸收、负载短路保护，A型：浪涌吸收
环境温、湿度：动作时、保存时：各-30~+65℃
(不结冰、不结露)，动作时、保存时：各35~95%RH
绝缘阻抗：50MΩ以上(DC500兆欧表)充电部分与外壳间
耐电压：AC1000V 50/60Hz 1min充电部分与外壳间
温度的影响：温度范围-30~+65℃，+23℃时、±15%检测距离以内，
温度范围-25~+60℃,+23℃时、 ±10%检测距离以内
电压的影响：额定电源电压范围±15%以内、额定电源电压值时±10%
检测距离以内
保护构造：IP67(IEC规格)
材质：(外壳：ABS) (检测面：ABS)

Delay distance：10% below of the detection distance
Detection object：Magnetic metal (the detection distance decreases when it is non-magnetic metal)
Supply voltage：DC type: DC12-24V(6-36V) Impulse (p-p) 10% below, AC type:AC110-220V (36-250V) 50/60Hz
Consumption current：N.P type: 13mA below, D type: 0.8mA below, A type: 1.7mA below
Control output：N.P type: 300mA below, D type: 200mA below, A type: 400mA below
Loop protection：N.P.D type: reversal connection protection, surge absorption, load short-circuit protection, A type: surge absorption
Ambient temperature & humidity：During operation, storage: individually -30~+65℃ (no freeze, no drew), During operation, storage: individually 35~95%RH
Insulation impedance：50MΩabove (DC500 megameter) between charging part and housing
Withstand voltage：AC1000V 50/60Hz 1min between charging part and housing
Temperature influence：Temperature range -30~+65℃, at +23℃, ±15% detection distance; temperature range -25~+60℃, at +23℃, ±10% detection distance
Voltage influence：Inside ±15% rated supply voltage range, at rated supply voltage value, inside ±10% detection distance
Protection structure：IP67 (IEC specification)
Material：（Housing：ABS），（Detection surface：ABS）.

外形尺寸(mm) External dimension

Chart68 图68 PS12-4□

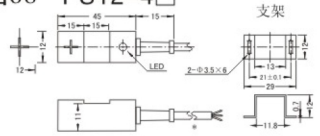


Chart69 图69 PSN25-5□

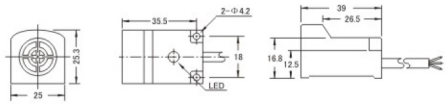


Chart70 图70 PSN30-10(15)□

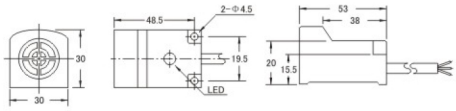


Chart71 图71 PSN40-20□

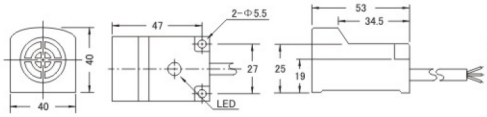


Chart72 图72 GKB-M0524□

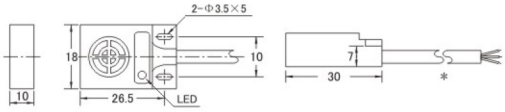


Chart73 图73 TL-W5□

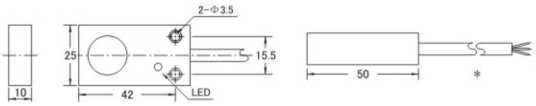


Chart74 图74 TL-W7□

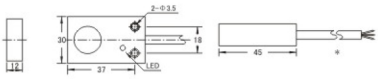


Chart75 图75 HJ-□

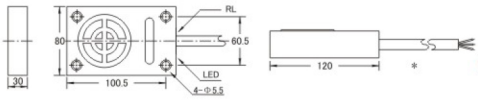


Chart76 图76 GN-02(04)□

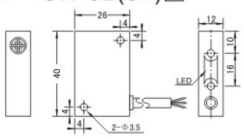


Chart77 图77 ST-□

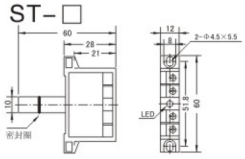


Chart78 图78 TK-T□

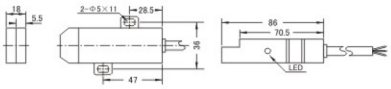


Chart79 图79 TC-T□

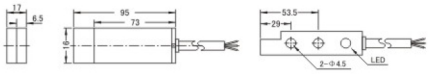


Chart80 图80 JKD-□

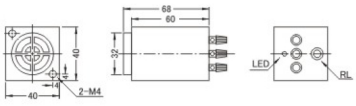
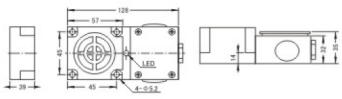


Chart81 图81 3SG3266-□



方型能与国内外各相同品种直接替换 Square type, can be thedirect substitution of the same type both at home and abroad

- 电源反接保护、短路保护，可直接与PLC相联接 — Power supply reversal connection protection; short-circuit protection, can directly connect with PLC
- 经济并且简单的操作 — Economic and simple operation
- 长寿命和高可靠性，耐环境性强 — Long service life, high reliability and strong resistance property to environment
- 红色LED显示可以检测传感器工作状态 — Red LED indicates that it's available to detect the sensor operating state
- IP67防护结构(IEC规格) — IP67 protection structure (IEC specification)
- 使用前请先阅读产品说明书的“注意事项” — Read the “Matters needing attention” of the Product Instruction before use

型号规格 Type and Specification

尺寸 Dimension				30×30×80	40×40×118		55×55×130	50×50×50	55×55×52	80×80×48
安装方式 Mounting way				非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type		非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type
型号 Type	直流型 DC type	NPN	NO	HY-3010A	HY-3015A	HY-3020A	HY-3030A	HD-3020A	HE-3025A	HM-3040A
			NC	HY-3010B	HY-3015B	HY-3020B	HY-3030B	HD-3020B	HE-3025B	HM-3040B
			NO+NC	HY-3010AB	HY-3015AB	HY-3020AB	HY-3030AB			
		PNP	NO	HY-3010C	HY-3015C	HY-3020C	HY-3030C	HD-3020C	HE-3025C	HM-3040C
			NC	HY-3010D	HY-3015D	HY-3020D	HY-3030D	HD-3020D	HE-3025D	HM-3040D
			NO+NC	HY-3010CD	HY-3015CD	HY-3020CD	HY-3030CD			
		二线 Two-wire	NO	HY-3010AL	HY-3015AL	HY-3020AL	HY-3030AL	HD-3020AL	HE-3025AL	HM-3040AL
			NC	HY-3010BL	HY-3015BL	HY-3020BL	HY-3030BL	HD-3020BL	HE-3025BL	HM-3040BL
	交流型 AC type	二线 Two-wire	NO	HY-2010A	HY-2015A	HY-2020A	HY-2030A	HD-2020A	HE-2025A	HM-2040A
			NC	HY-2010B	HY-2015B	HY-2020B	HY-2030B	HD-2020B	HE-2025B	HM-2040B
		三线 Three-wire	NO+NC		HY-2015AB	HY-2020AB	HY-2030AB	HD-2020AB	HE-2025AB	HM-2040AB
检测距离 Detection distance				10mm±10%	15mm±10%	20mm±10%	30mm±10%	20mm±10%	25mm±10%	40mm±10%
设定距离 Set distance				0~8mm	0~13mm	0~17mm	0~27mm	0~17mm	0~22mm	0~35mm
标准检测物体 Standard detection object				铁30×30×1mm	铁50×50×1mm	铁50×50×1mm	铁65×65×1mm	铁50×50×1mm	铁60×60×1mm	铁90×90×2mm
响应频率 Response frequency				DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz
图例 Illustration				图82 Chatr82	图83 Chatr83		图84 Chatr84	图85 Chatr85	图86 Chatr86	图87 Chatr87

型号规格 Type and Specification

尺寸 Dimension				38×40×80	44×45×90	52×33×25	56×36×26	65×39×25	31×33×50	31×33×50	34×42×73
安装方式 Mounting way				非屏蔽式(屏蔽式) Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type
型号 Type	直流型 DC type	NPN	NO	LJ2-15(10)/221 (211接插式)	LJ2-20/221	LJ1A-24			JWK-D5P	JWK-A5P	JWK-D10P
			NC	LJ2-15G(10)/221 (211接插式)	LJ2-20G/221	LJ1A-24B			JWK-D5P2	JWK-A5P2	JWK-D10P2
	交流型 AC type	二线 Two-wire	NO	LJ2L-15(10)-4/121	LJ2L-20-4/121	LJ1A-220	WJK-Ⅱ(绿壳)	WJK2-Ⅱ(白壳)			
			NC	LJ2L-15G(10)-4/121	LJ2L-20G-4/121	LJ1A-220B	WJK-Ⅱ2(绿壳)	WJK2-Ⅱ2(白壳)			
检测距离 Detection distance				15mm±10%	20mm±10%	8mm±10%	8mm±10%	8mm±10%	5mm±10%	5mm±10%	10mm±10%
设定距离 Set distance				0~13mm	0~17mm	0~7mm	0~7mm	0~7mm	0~4mm	0~4mm	0~8mm
标准检测物体 Standard detection object				铁45×45×1mm	铁50×50×1mm	铁18×18×1mm	铁18×18×1mm	铁18×18×1mm	铁18×18×1mm	铁18×18×1mm	铁25×25×1mm
响应频率 Response frequency				DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz
图例 Illustration				图88 Chatr88	图89 Chatr89	图90 Chatr90	图91 Chatr91	图92 Chatr92	图93 Chatr93		图94 Chatr94

尺寸 Dimension				34×42×73	48×48×105	38×40×92	32×26×80	42×90×65	65×55×48	50×25×32	62×25×24
安装方式 Mounting way				非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type
型号 Type	直流型 DC type	NPN	NO	JWK-A10P			JWKL12-AΩ		SQS19-Z4N	LJ1-24	LXU1-115G
			NC	JWK-A10P2			JWKL12-BΩ		SQS19-Z4N2	LJ1-24B	LXU1-115G2
	交流型 AC type	继电器输出型 Relay output type			JWK220-A(D)10J(电压型)	GS-M1522KCT		LXJ0-1A(NO+NC)			
					JWK220-A(D)10JK(触点型)	LJG8D-15/J2H1		LXJ0-2D(NO+NC)			
检测距离 Detection distance				10mm±10%	10mm±10%	15mm±10%	8mm±10%	10mm±10%	4mm±10%	5mm±10%	5mm±10%
设定距离 Set distance				0~8m	0~8mm	0~13mm	0~7mm	0~8mm	0~3.6mm	0~4mm	0~4mm
标准检测物体 Standard detection object				铁30×30×1mm	铁30×30×1mm	铁30×30×1mm	铁18×18×1mm	铁30×30×1mm	铁30×30×1mm	铁18×18×1mm	铁18×18×1mm
响应频率 Response frequency				DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz
图例 Illustration				图94 Chatr94	图95 Chatr95	—	—	—	—	—	—

特性参数 Characteristic parameters

滞后距离：检测距离的10%以下
检测物体：磁性金属(非磁性金属时检测距离减小)
电源电压：直流型：DC12~24V(6~36V)脉动(P-P)10%以下，
交流型：AC110~220V(36~250V)50/60Hz
消耗电流：N.P型：13mA以下，D型：0.8mA以下，A型：1.7mA以下
控制输出：N.P型：300mA以下，D型：200mA以下，A型：400mA以下
回路保护：N.P.D型：逆连接保护、浪涌吸收、负载短路保护，A型：浪涌吸收
环境温、湿度：动作时、保存时：各-30~+65℃
(不结冰、不结露)，动作时、保存时：各35~95%RH
绝缘阻抗：50MΩ以上(DC500兆欧表)充电部分与外壳间
耐电压：AC1000V 50/60Hz 1min充电部分与外壳间
温度的影响：温度范围-30~+65℃，+23℃时、±15%检测距离以内，
温度范围-25~+60℃,+23℃时、 ±10%检测距离以内
电压的影响：额定电源电压范围±15%以内、额定电源电压值时±10%
检测距离以内
保护构造：IP67(IEC规格)
材质：(外壳：ABS) (检测面：ABS)

Delay distance：10% below of the detection distance
Detection object：Magnetic metal (the detection distance decreases when it is non-magnetic metal)
Supply voltage：DC type: DC12-24V(6-36V) Impulse (p-p) 10% below, AC type:AC110-220V (36-250V) 50/60Hz
Consumption current：N.P type: 13mA below, D type: 0.8mA below, A type: 1.7mA below
Control output：N.P type: 300mA below, D type: 200mA below, A type: 400mA below
Loop protection：N.P.D type: reversal connection protection, surge absorption, load short-circuit protection, A type: surge absorption
Ambient temperature & humidity：During operation, storage: individually -30~+65℃ (no freeze, no drew), During operation, storage: individually 35~95%RH
Insulation impedance：50MΩabove (DC500 megameter) between charging part and housing
Withstand voltage：AC1000V 50/60Hz 1min between charging part and housing
Temperature influence：Temperature range -30~+65℃, at +23℃, ±15% detection distance; temperature range -25~+60℃, at +23℃, ±10% detection distance
Voltage influence：Inside ±15% rated supply voltage range, at rated supply voltage value, inside ±10% detection distance
Protection structure：IP67 (IEC specification)
Material：（Housing：ABS），（Detection surface：ABS）.

外形尺寸(mm) External dimension

Chart 82 图82 HY-□10□

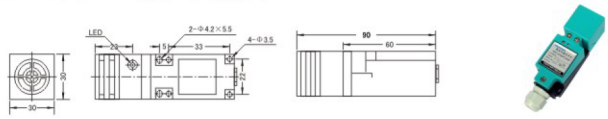


Chart 83 图83 HY-□15(20)□

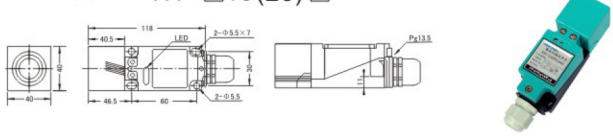


Chart 84 图84 HY-□30□

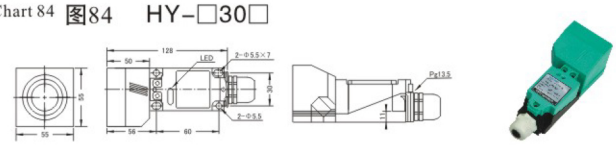


Chart 85 图85 HD-□20□

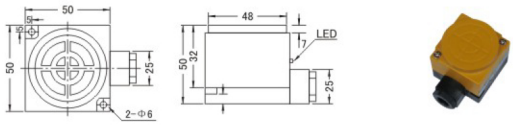


Chart 86 图86 HE-□25□

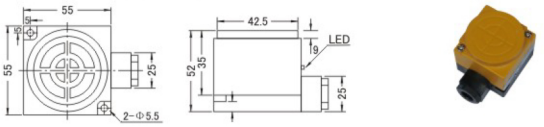


Chart 87 图87 HM-□40□

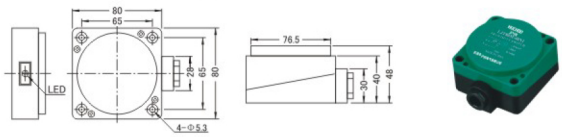


Chart 88 图88 LJ2-15□

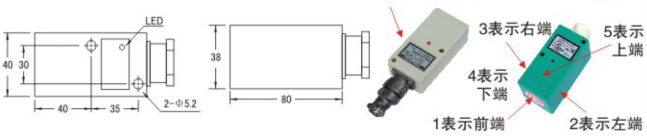


Chart 89 图89 LJ2-20□

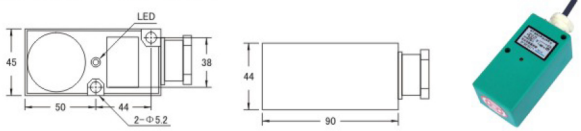


Chart 90 图90 LJ1A-□

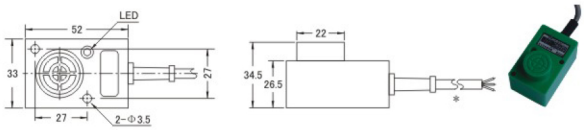


Chart 91 图91 WJK-II

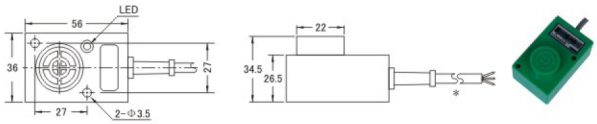


Chart 92 图92 WJK-II

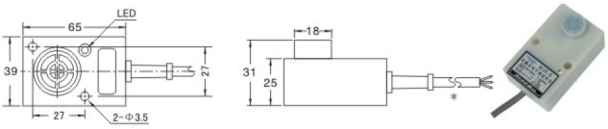


Chart 93 图93 JWK-D(A)5□

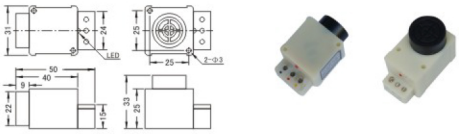


Chart 94 图94 JWK-D(A)10□

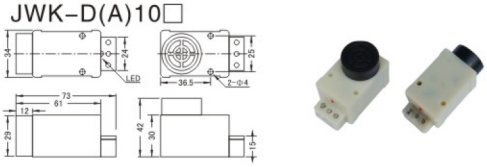
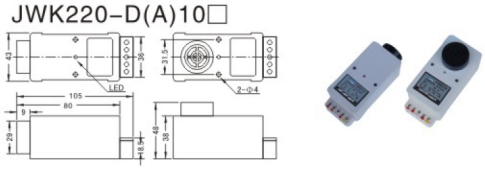


Chart 95 图95 JWK220-D(A)10□



方型 槽型能与国内外各相同品种直接替换 Square and groove type, can be thedirect substitution of the same type both at home and abroad

- 电源反接保护、短路保护，可直接与PLC相联接 — Power supply reversal connection protection; short-circuit protection, can directly connect with PLC
- 经济并且简单的操作 — Economic and simple operation
- 长寿命和高可靠性，耐环境性强 — Long service life, high reliability and strong resistance property to environment
- 红色LED显示可以检测传感器工作状态 — Red LED indicates that it's available to detect the sensor operating state
- IP67防护结构(IEC规格) — IP67 protection structure (IEC specification)
- 使用前请先阅读产品说明书的“注意事项” — Read the “Matters needing attention” of the Product Instruction before use

型号规格 Type and Specification

尺寸 Dimension				28×16×12	32×22×11	10×17×20	16×25×44	16×23×42	15×29×31	86×29×18	87×70×45
安装方式 Mounting way				非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	槽 式 Slot type	槽 式 Slot type	槽 式 Slot type	槽 式 Slot type	非屏蔽式 Non-screen shield type	槽 式 Slot type
型号 Type	直流型 DC type	NPN	NO	LJG5C-4/Z2CN2	LJG5C-5/Z2CN2	LU3-10N1	LU4-16N1	LU5-16N1	LU5-15N1	JKD-J-D12	
			NC	LJG5C-4/Z2BN2	LJG5C-5/Z2BN2	LU3-10N2	LU4-16N2	LU5-16N2	LU5-15N2		
			NO+NC								
		PNP	NO	LJG5C-4/Z2CP2	LJG5C-5/Z2CP2	LU3-10P1	LU4-16P1	LU5-16P1	LU5-15P1		JKS-J-D
			NC	LJG5C-4/Z2BP2	LJG5C-5/Z2BP2	LU3-10P2	LU4-16P2	LU5-16P2	LU5-15P2		
			NO+NC								
		二线 Two-wire	NO	LJG5C-4/Z0AN2	LJG5C-5/Z0AN2		LU4-16D1	LU5-16D1	LU5-15D1		
			NC	LJG5C-4/Z0BN2	LJG5C-5/Z0BN2		LU4-16D2	LU5-16D2	LU5-15D2		
	交流型 AC type	二线 Two-wire	NO								
			NC								
		三线 Three-wire	NO+NC								
检测距离 Detection distance				4mm±10%	5mm±10%	3mm±10%	4mm±10%	5mm±10%	5mm±10%	10mm±10%	10mm±10%
设定距离 Set distance				0~3.6mm	0~4mm	3mm	4mm	5mm	5mm	0~8mm	10mm
标准检测物体 Standard detection object				铁18×18×1mm	铁18×18×1mm	铁18×18×1mm	铁25×25×1mm	铁25×25×1mm	铁25×25×1mm	铁30×30×1mm	铁30×30×1mm
响应频率 Response frequency				DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz
图例 Illustration				图96 Chatr96	图97 Chatr97	图98 Chatr98	图99 Chatr99	图100 Chatr100	图101 Chatr101	—	—

型号规格 Type and Specification

尺寸 Dimension				Φ36×18	Φ42×25	Φ48×32	Φ55×35	Φ80×40	Φ100×50	Φ140×55	Φ210×64
安装方式 Mounting way				非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type
型号 Type	直流型 DC type	NPN	NO	SK-3015A	SR-3020A	SD-3020A	SE-3025A	TCO-3040A	TCA-3050A	TCB-3080A	TCC-30120A
			NC	SK-3015B	SR-3020B	SD-3020B	SE-3025B	TCO-3040B	TCA-3050B	TCB-3080B	TCC-30120B
			NO+NC	SK-3015AB	SR-3020AB	SD-3020AB	SE-3025AB	TCO-3040AB	TCA-3050AB	TCB-3080AB	TCC-30120AB
		PNP	NO	SK-3015C	SR-3020C	SD-3020C	SE-3025C	TCO-3040C	TCA-3050C	TCB-3080C	TCC-30120C
			NC	SK-3015D	SR-3020D	SD-3020D	SE-3025D	TCO-3040D	TCA-3050D	TCB-3080D	TCC-30120D
			NO+NC	SK-3015CD	SR-3020CD	SD-3020CD	SE-3025CD	TCO-3040CD	TCA-3050CD	TCB-3080CD	TCC-30120CD
		二线 Two-wire	NO	SK-3015AL	SR-3020AL	SD-3020AL	SE-3025AL	TCO-3040AL	TCA-3050AL	TCB-3080AL	TCC-30120AL
			NC	SK-3015BL	SR-3020BL	SD-3020BL	SE-3025BL	TCO-3040BL	TCA-3050BL	TCB-3080BL	TCC-30120BL
	交流型 AC type	二线 Two-wire	NO	SK-2015A	SR-2020A	SD-2020A	SE-2025A	TCO-2040A	TCA-2050A	TCB-2080A	TCC-20120A
			NC	SK-2015B	SR-2020B	SD-2020B	SE-2025B	TCO-2040B	TCA-2050B	TCB-2080B	TCC-20120B
		三线 Three-wire	NO+NC			SD-2020AB	SE-2025AB	TCO-2040AB	TCA-2050AB	TCB-2080AB	TCC-20120AB
检测距离 Detection distance				15mm±10%	20mm±10%	20mm±10%	25mm±10%	40mm±10%	50mm±10%	80mm±10%	120mm±10%
设定距离 Set distance				0~13mm	0~16mm	0~17mm	0~22mm	0~35mm	0~40mm	0~65mm	0~90mm
标准检测物体 Standard detection object				铁55×55×1mm	铁60×60×1mm	铁65×65×1mm	铁75×75×1mm	铁80×80×2mm	铁100×100×2mm	铁140×140×2mm	铁210×210×2mm
响应频率 Response frequency				DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz
图例 Illustration				图102 Chatr102	图103 Chatr103	图104 Chatr104	图105 Chatr105	图106 Chatr106	图107 Chatr107	图108 Chatr108	图109 Chatr109

特性参数 Characteristic parameter

滞后距离：检测距离的10%以下
检测物体：磁性金属(非磁性金属时检测距离减小)
电源电压：直流型：DC12~24V(6~36V)脉动(P-P)10%以下，
交流型：AC110~220V(36~250V)50/60Hz
消耗电流：N.P型：13mA以下，D型：0.8mA以下，A型：1.7mA以下
控制输出：N.P型：300mA以下，D型：200mA以下，A型：400mA以下
回路保护：N.P.D型：逆连接保护、浪涌吸收、负载短路保护，A型：浪涌吸收
环境温、湿度：动作时、保存时：各-30~+65℃
(不结冰、不结露)，动作时、保存时：各35~95%RH
绝缘阻抗：50MΩ以上(DC500兆欧表)充电部分与外壳间
耐电压：AC1000V 50/60Hz 1min充电部分与外壳间
温度的影响：温度范围-30~+65℃，+23℃时、±15%检测距离以内，
温度范围-25~+60℃,+23℃时、 ±10%检测距离以内
电压的影响：额定电源电压范围±15%以内、额定电源电压值时±10%
检测距离以内
保护构造：IP67(IEC规格)
材质：(外壳：ABS) (检测面：ABS)

Delay distance：10% below of the detection distance
Detection object：Magnetic metal (the detection distance decreases when it is non-magnetic metal)
Supply voltage：DC type: DC12-24V(6-36V) Impulse (p-p) 10% below, AC type:AC110-220V (36-250V) 50/60Hz
Consumption current：N.P type: 13mA below, D type: 0.8mA below, A type: 1.7mA below
Control output：N.P type: 300mA below, D type: 200mA below, A type: 400mA below
Loop protection：N.P.D type: reversal connection protection, surge absorption, load short-circuit protection, A type: surge absorption
Ambient temperature & humidity：During operation, storage: individually -30~+65℃ (no freeze, no drew), During operation, storage: individually 35~95%RH
Insulation impedance：50MΩabove (DC500 megameter) between charging part and housing
Withstand voltage：AC1000V 50/60Hz 1min between charging part and housing
Temperature influence：Temperature range -30~+65℃, at +23℃, ±15% detection distance; temperature range -25~+60℃, at +23℃, ±10% detection distance
Voltage influence：Inside ±15% rated supply voltage range, at rated supply voltage value, inside ±10% detection distance
Protection structure：IP67 (IEC specification)
Material：（Housing：ABS），（Detection surface：ABS）.

外形尺寸(mm) External dimension

Chart 96 图96 LJG5C-4(2)□

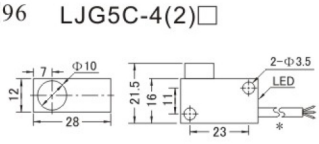


Chart 97 图97 LJG5C-5□

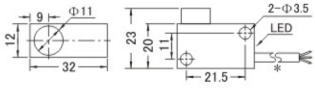
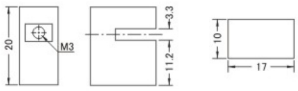


Chart 98 图98 LU3-10□



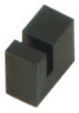


Chart 99 图99 LU4-16□

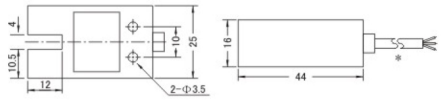


Chart 100 图100 LU5-16□

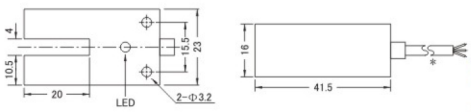


Chart 101 图101 LU5-15□

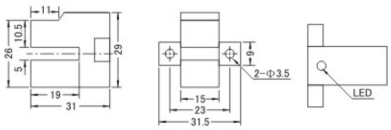


Chart 102 图102 SK-□15□

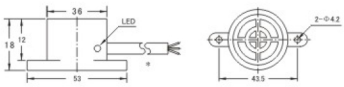


Chart 103 图103 SR-□20□

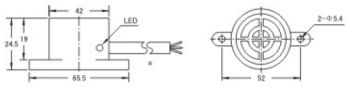


Chart 104 图104 SD-□20□

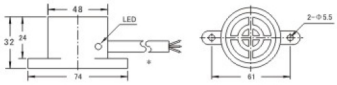


Chart 105 图105 SE-□25□

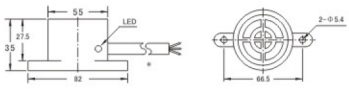


Chart 106 图106 TCO-□40□

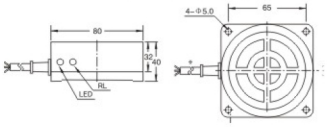


Chart 107 图107 TCA-□50□

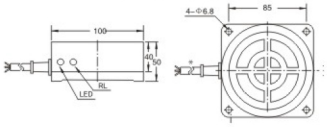


Chart 108 图108 TCB-□80□

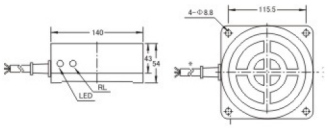
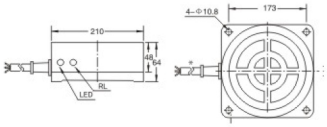
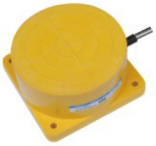


Chart 109 图109 TCC-□120□





电容式，能与国内外各相同品种直接替换 Conductive type, can be thedirect substitution of the same type both at home and abroad

- 电源反接保护、短路保护，可直接与PLC相联接
- 经济并且简单的操作
- 长寿命和高可靠性，耐环境性强
- 红色LED显示可以检测传感器工作状态
- IP67防护结构(IEC规格)
- 使用前请先阅读产品说明书的“注意事项”

Power supply reversal connection protection; short-circuit protection, can directly connect with PLC
Economic and simple operation
Long service life, high reliability and strong resistance property to environment
Red LED indicates that it's available to detect the sensor operating state
IP67 protection structure (IEC specification)
Read the “Matters needing attention” of the Product Instruction before use

规格型号 Type and Specification

尺寸 Dimension				M12×1		M18×1		M24×1.5		M30×1	
安装方式 Mounting way				屏蔽式 screen shield type	非屏蔽式 Non-screen shield type	屏蔽式 screen shield type	非屏蔽式 Non-screen shield type	屏蔽式 screen shield type	非屏蔽式 Non-screen shield type	屏蔽式 screen shield type	非屏蔽式 Non-screen shield type
型号 Type	直流型 DC type	NPN	NO	LJC12A3-2-Z/BX	LJC12A3-A-Z/BX	LJC18A3-5-Z/BX	LJC18A3-B-Z/BX	LJC24A3-8-Z/BX	LJC24A3-T-Z/BX	LJC30A3-10-Z/BX	LJC30A3-H-Z/BX
			NC	LJC12A3-2-Z/AX	LJC12A3-A-Z/AX	LJC18A3-5-Z/AX	LJC18A3-B-Z/AX	LJC24A3-8-Z/AX	LJC24A3-T-Z/AX	LJC30A3-10-Z/AX	LJC30A3-H-Z/AX
			NO+NC								
		PNP	NO	LJC12A3-2-Z/BY	LJC12A3-A-Z/BY	LJC18A3-5-Z/BY	LJC18A3-B-Z/BY	LJC24A3-8-Z/BY	LJC24A3-T-Z/BY	LJC30A3-10-Z/BY	LJC30A3-H-Z/BY
			NC	LJC12A3-2-Z/AY	LJC12A3-A-Z/AY	LJC18A3-5-Z/AY	LJC18A3-B-Z/AY	LJC24A3-8-Z/AY	LJC24A3-T-Z/AY	LJC30A3-10-Z/AY	LJC30A3-H-Z/AY
			NO+NC								
		二线 Two-wire	NO								
			NC								
	交流型 AC type	二线 Two-wire	NO			LJC18A3-5-J/EZ	LJC18A3-B-J/EZ	LJC24A3-8-J/EZ	LJC24A3-T-J/EZ	LJC30A3-10-J/EZ	LJC30A3-H-J/EZ
			NC			LJC18A3-5-J/DZ	LJC18A3-B-J/DZ	LJC24A3-8-J/DZ	LJC24A3-T-J/DZ	LJC30A3-10-J/DZ	LJC30A3-H-J/DZ
		三线 Three-wire	NO+NC								
检测距离 Detection distance				2mm±10%	5mm±10%	5mm±10%	10mm±10%	8mm±10%	15mm±10%	10mm±10%	25mm±10%
设定距离 Set distance				0~1.7mm	0~4mm	0~4mm	0~8mm	0~7mm	0~13mm	0~8mm	0~18mm
标准检测物体 Standard detection object				铁SPCC 50×50×1mm							
响应频率 Response frequency				DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz
图例 Illustration				图110 Chatr110	图111 Chatr111	图112 Chatr112	图113 Chatr113	图114 Chatr114	图115 Chatr115	图116 Chatr116	图117 Chatr117

规格型号 Type and Specification

尺寸 Dimension				Φ20	Φ34	M38×1.5	Φ80×80×40
安装方式 Mounting way				非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type	非屏蔽式 Non-screen shield type
型号 Type	直流型 DC type	NPN	NO	LJC20A4-10-Z/BX	LJC34A3-K-Z/BX	LJC38A4-20-Z/BX	LJC80A4-40-Z/BX
			NC	LJC20A4-10-Z/AX	LJC34A3-K-Z/AX	LJC38A4-20-Z/AX	LJC80A4-40-Z/AX
			NO+NC				
		PNP	NO	LJC20A4-10-Z/BY	LJC34A3-K-Z/BY	LJC38A4-20-Z/BY	LJC80A4-40-Z/BY
			NC	LJC20A4-10-Z/AY	LJC34A3-K-Z/AY	LJC38A4-20-Z/AY	LJC80A4-40-Z/AY
			NO+NC				
		二线 Two-wire	NO				
			NC				
	交流型 AC type	二线 Two-wire	NO	LJC20A4-10-J/EZ	LJC34A3-K-J/EZ	LJC38A4-20-J/EZ	LJC80A4-40-J/EZ
			NC	LJC20A4-10-J/DZ	LJC34A3-K-J/DZ	LJC38A4-20-J/DZ	LJC80A4-40-J/DZ
		三线 Three-wire	NO+NC				
检测距离 Detection distance				10mm±10%	25mm±10%	20mm±10%	40mm±10%
设定距离 Set distance				0~8mm	0~22mm	0~18mm	0~35mm
标准检测物体 Standard detection object				铁SPCC 50×50×1mm			
响应频率 Response frequency				DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz	DC: 0.5kHz AC: 25Hz
图例 Illustration				图118 Chatr118	图119 Chatr119	图120 Chatr120	图121 Chatr121

特性参数 Characteristic parameter

滞后距离：检测距离的10%以下
检测物体：任何介电物质
电源电压：直流型：DC12~24V(6~36V)脉动(P-P)10%以下，
交流型：AC110~220V(36~250V)50/60Hz
消耗电流：N.P型：13mA以下，D型：0.8mA以下，A型：1.7mA以下
控制输出：N.P型：300mA以下，D型：200mA以下，A型：400mA以下
回路保护：N.P.D型：逆连接保护、浪涌吸收、负载短路保护，A型：浪涌吸收
环境温、湿度：动作时、保存时：各-30~+65℃
(不结冰、不结露)，动作时、保存时：各35~95%RH
绝缘阻抗：50MΩ以上(DC500兆欧表)充电部分与外壳间
耐电压：AC1000V 50/60Hz 1min充电部分与外壳间
温度的影响：温度范围-30~+65℃，+23℃时、±15%检测距离以内，
温度范围-25~+60℃,+23℃时、 ±10%检测距离以内
电压的影响：额定电源电压范围±15%以内、额定电源电压值时±10%
检测距离以内
保护构造：IP67(IEC规格)
材质：(外壳：黄铜镀镍)；(检测面：ABS)

Delay distance：10% below of the detection distance
Detection object：Can detect any dielectric
Supply voltage：DC type: DC12-24V(6-36V) Impulse (p-p) 10% below, AC type:AC110-220V (36-250V) 50/60Hz
Consumption current：N.P type: 13mA below, D type: 0.8mA below, A type: 1.7mA below
Control output：N.P type: 300mA below, D type: 200mA below, A type: 400mA below
Loop protection：N.P.D type: reversal connection protection, surge absorption, load short-circuit protection, A type: surge absorption
Ambient temperature & humidity：During operation, storage: individually -30~+65℃ (no freeze, no drew), During operation, storage: individually 35~95%RH
Insulation impedance：50MΩabove (DC500 megameter) between charging part and housing
Withstand voltage：AC1000V 50/60Hz 1min between charging part and housing
Temperature influence：Temperature range -30~+65℃, at +23℃, ±15% detection distance; temperature range -25~+60℃, at +23℃, ±10% detection distance
Voltage influence：Inside ±15% rated supply voltage range, at rated supply voltage value, inside ±10% detection distance
Protection structure：IP67 (IEC specification)
Material：（Housing：Nickel plated brass），（Detection surface：ABS）.

外形尺寸(mm) External dimension(mm)

Chart 110 图110 LJC12A3-2-□

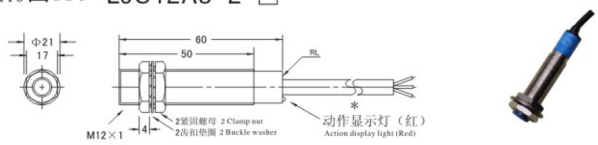


Chart 111 图111 LJC12A3-A-□

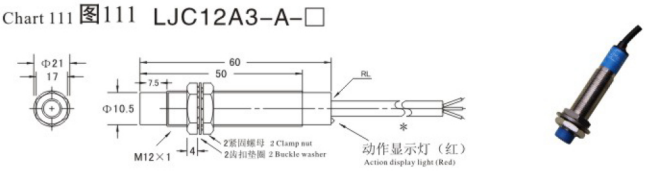


Chart 112 图112 LJC18A3-5-□

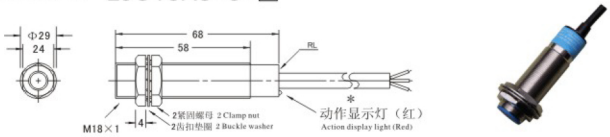


Chart 113 图113 LJC18A3-B-□

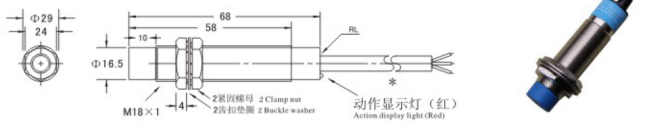


Chart 114 图114 LJC24A3-8-□

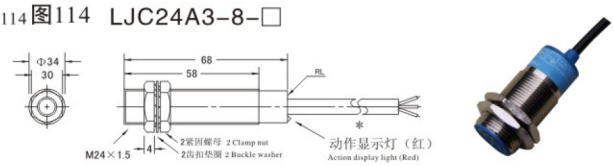


Chart 115 图115 LJC24A3-T-□

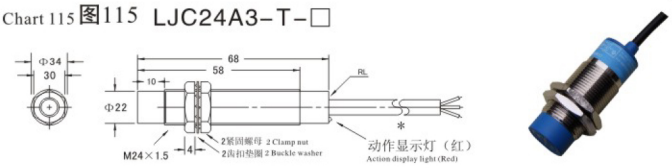


Chart 116 图116 LJC30A3-10-□

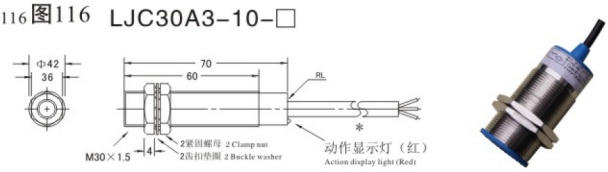


Chart 117 图117 LJC30A3-H-□

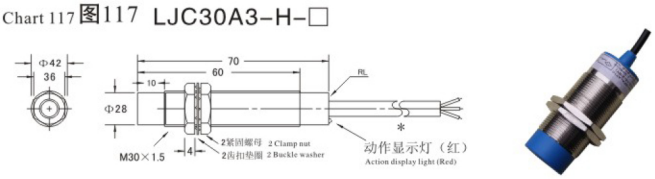


Chart 118 图118 LJC20A4-10-□

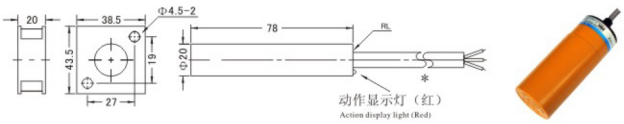


Chart 119 图119 LJC34A4-K-□

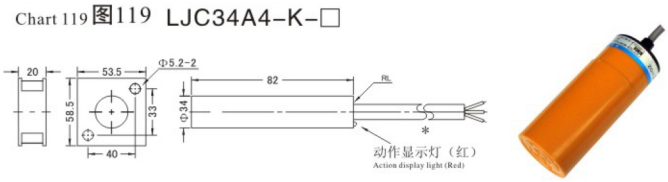


Chart 120 图120 LJC38A4-20-□

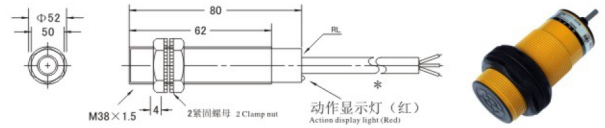
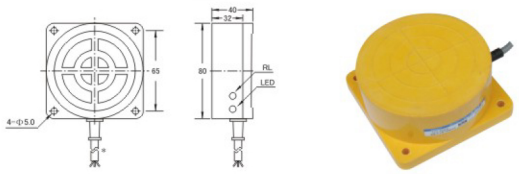


Chart 121 图121 LJC80A4-40-□



霍尔型能检测物体的计数 Holzer could count to detect objects.

- 电源反接保护 — Power supply reversal connection protection
- 长寿命和高可靠性 — Long service life, high reliability
- 红色LED显示可以检测传感器工作状态 — Red LED indicates that it's available to detect the sensor operating state
- 距离可调节的简单操作 — Simple operation with adjustable distance
- IP67防护结构(IEC规格) — IP67 protection structure (IEC specification)
- 使用前请先阅读产品说明书的“注意事项” — Read the “Matters needing attention” of the Product Instruction before use



规格型号) Type and Specification(Simulation displaceme nt sensor)

尺寸 Dimension			M8×1×37	M12×1×37	M18×1×37	M17×17×28
安装方式 Mounting way			屏蔽式 screen shield type	屏蔽式 screen shield type	屏蔽式 screen shield type	屏蔽式 screen shield type
型号 Type	NPN	NO	NJK-8001C	NJK-5002C	NJK-5003C	CHE/JL-10NA-H710
		NC	NJK-8001D	NJK-5002D	NJK-5003D	CHE/JL-10NB-H710
		NO+NC	NJK-8001CD	NJK-5002CD	NJK-5003CD	CHE/JL-10NAB-H710
	PNP	NO	NJK-8001A	NJK-5002A	NJK-5003A	CHE/JL-10PA-H710
		NC	NJK-8001B	NJK-5002B	NJK-5003B	CHE/JL-10PB-H710
		NO+NC	NJK-8001AB	NJK-5002AB	NJK-5003AB	CHE/JL-10PAB-H710
检测距离 Detection distance			10mm±10%	10mm±10%	10mm±10%	10mm±10%
设定距离 Set distance			0-10mm	0-10mm	0-20mm	0-10mm
标准检测物体 Standard detection object			ϕ8×2mm 磁铁	ϕ12×2mm 磁铁	ϕ18×3mm 磁铁	ϕ12×2mm 磁铁
响应频率 Response frequency			100kHz	100kHz	100kHz	100kHz
图例 Illustration			图122 Chart122	图123 Chart123	图124 Chart124	图125 Chart125

规格型号(霍尔传感器) Type and Specification(Hall sensor-based)

图122 Chart122 NJK-8001□

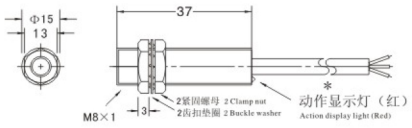


图123 Chart123 NJK-5002□

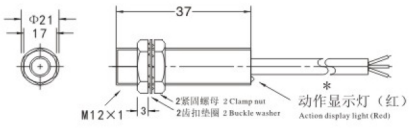


图124 Chart124 CHE/JS-10NA-H710

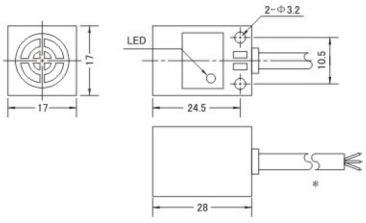
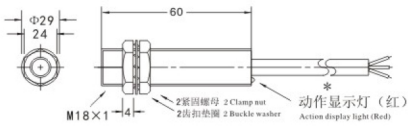


图125 Chart125 NJK-5003□



双向霍尔传感器

- 电源反接保护 — Power supply reversal connection protection
- 长寿命和高可靠性 — Long service life, high reliability
- 红色LED显示可以检测传感器工作状态 — Red LED indicates that it's available to detect the sensor operating state
- 距离可调节的简单操作 — Simple operation with adjustable distance
- IP67防护结构(IEC规格) — IP67 protection structure (IEC specification)
- 使用前请先阅读产品说明书的“注意事项” — Read the “Matters needing attention” of the Product Instruction before use

	产品型号	输出形式	工作电压	输出电流	输出状态
 如图126	CHE12-10N11-H710	NPN	5-30VDC	150mA	NO+NO
 如图127	CHE18-15N11-H710	NPN	5-30VDC	150mA	NO+NO

图126 Chart126 CHE12-10N11-H710

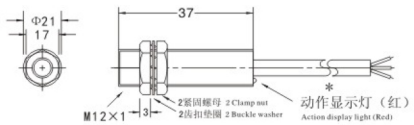
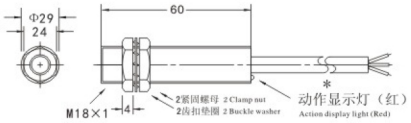


图127 Chart127 CHE18-15N11-H710

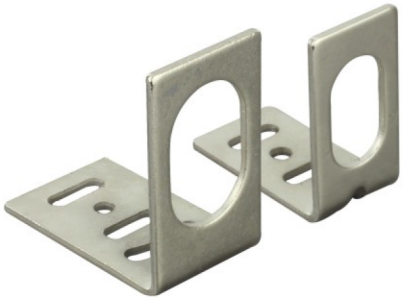


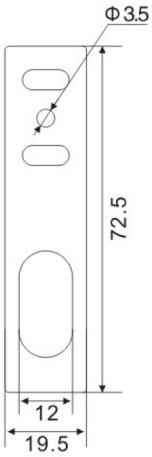
正反转传感器 Reversing sensor　　CHE-ZF85125M型

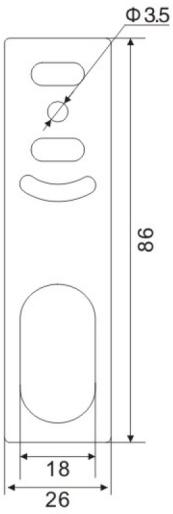
- 电源电压:16-30VDC — The power supply voltage: 16-30VDC
- 检测物体：磁性金属 — Object detection: magnetic metal
- 电源反接保护 — The power reverse protection
- 长寿命和高可靠性 — Long life and high reliability
- 防水耐油抗高低温 — Waterproof oil resistance, high and low temperature resistance
- 使用前请先阅读产品说明书的“注意事项” — Please read the product description " before use "

图128 Chart128

圆柱型开关安装支架　单位：mm







磁感应式，能检测汽缸中活塞的位置 Magnetic induction type, can detect the position of the plunger in the cylinder

- 传感器可以安装在金属中 — Sensors can be mounted in the metal
- 传感器并排安装没有任何要求 — The parallel installation of the sensors hasn't any demand
- 传感器感应面可以由金属制成 — Sensor induction surface can be made of metal
- 传感器可以穿过金属检测 — Sensors can undertake detection through metal
- 传感器可以有更大的感应距离和更小的尺寸 — Sensors can have larger induction distance and smaller dimension
- IP67防护结构(IEC规格) — IP67 protection structure (IEC specification)
- 使用前请先阅读产品说明书的“注意事项” — Read the “Matters needing attention” of the Product Instruction before use

规格型号 Type and Specification

尺寸 Dimension			M5×1×30	M8×1×30	M12×1×50	4.7×8×18	7.5×8×23	8×11×26	6.5×11×22.5
型号 Type	磁式 Magnetic type	DC/AC二线 Two-wire NO	LG5A3-10-J/EZ	LG8A3-10-J/EZ	LG12A3-10-J/EZ	SD-1	SD-2	D-C73	D-A73
		NC	LG5A3-10-J/DZ	LG8A3-10-J/DZ	LG12A3-10-J/DZ				
电源电压 Supply voltage			DC/AC:5-220V						
连续负载电流 Continuous load current			50mA	50mA	200mA	50mA	50mA	100mA	100mA
图例 Illustration			图130 Chatr130	图131 Chatr131	图132 Chatr132	图133 Chatr133	图134 Chatr134	图135 Chatr135	图136 Chatr136

规格型号 Type and Specification

尺寸 Dimension			6.5×11×22.5	11×12×28	11×13×28	15×14×33.5	10×20×40	7.5×7×22	6×14×23
型号 Type	磁式 Magnetic type	DC/AC二线 Two-wire NO	CS1-J	CS1-U	CS1-F	CS1-S	D-B54	CS4H	MS-1
		NC							
电源电压 Supply voltage			DC/AC:5-220V						
连续负载电流 Continuous load current			100mA	100mA	100mA	100mA	100mA	100mA	100mA
图例 Illustration			图137 Chatr137	图138 Chatr138	图139 Chatr139	图140 Chatr140	图141 Chatr141	图142 Chatr142	图143 Chatr143

规格型号 Type and Specification

尺寸 Dimension			8×16.5×24	8×15×25	6.5×19×28.5	7×14.8×33	10×21×56	3×4.5×22.5	5.8×5×24.5	5.8×5×29
型号 Type	磁式 Magnetic type	DC/AC二线 Two-wire NO	MS-2	MS-3	MS-4	MS-5	MS-6	SD-3	SD-4	SD-5
		NC								
电源电压 Supply voltage			DC/AC:5-220V							
连续负载电流 Continuous load current			100mA	100mA	100mA	100mA	100mA	100mA	100mA	100mA
图例 Illustration			图144 Chatr144	图145 Chatr145	图146 Chatr146	图147 Chatr147	图148 Chatr148	图149 Chatr149	图150 Chatr150	图151 Chatr151

规格型号 Type and Specification

尺寸 Dimension			6×5×29	12×36×36	10×34×40	28×80×94.5	13×19.5×43	28×80×94.5	78×60×27	13X19.5×43
型号 Type	磁式 Magnetic type	DC/AC二线 Two-wire NO	D-Z73	D-A93	CS1-G	SG-1	SG-2			LJC1-3/24
		DC/AC三线 Three-wire NO+NC						YG-1	MS-01	
电源电压 Supply voltage			DC/AC:5-220V							
连续负载电流 Continuous load current			100mA	100mA	100mA	100mA	100mA	300mA	300mA	100mA
图例 Illustration			图152 Chatr152	图153 Chatr153	图154 Chatr154	图155 Chatr155	图156 Chatr156	图 157Chatr	图 158Chatr	图 159Chatr

外形尺寸(mm) External dimension(mm)

Chart 130 图130 LG5A3-10-J/EZ

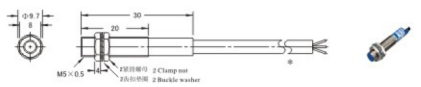


Chart 131 图131 LG8A3-10-J/EZ(GHG8-10A.A2)

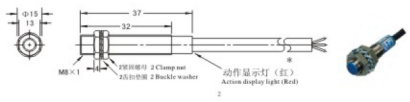


Chart 132 图132 LG12A3-10-J/EZ (GHG12-10A.A2)

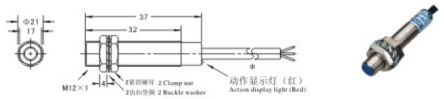


Chart 133 图133 SD-1-□

Chart 134 图134 SD-2-□

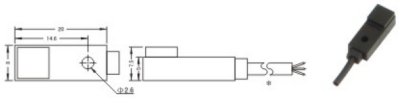


Chart 135 图135 D-C73

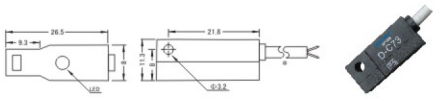


Chart 136 图136 D-A73

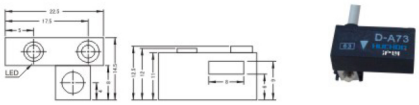


Chart 137 图137 CS1-J

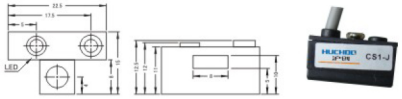


Chart 138 图138 CS1-U

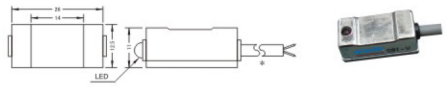


Chart 139 图139 CS1-F

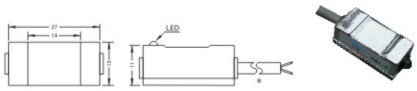


Chart 140 图140 CS1-S

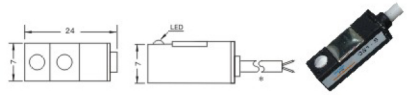


Chart 141 图141 D-B54

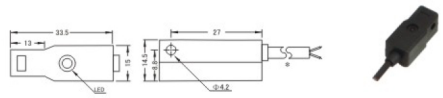


Chart 142 图142 CS4H

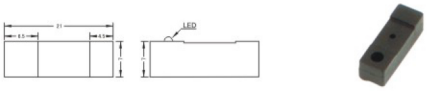


Chart 143 图143 MS-1

Chart 144 图144 MS-2

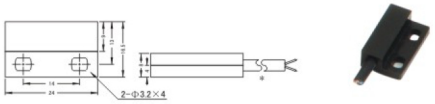


Chart 145 图145 MS-3

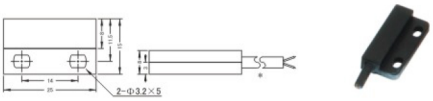


Chart 146 图146 MS-4

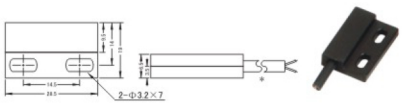


Chart 147 图147 MS-5

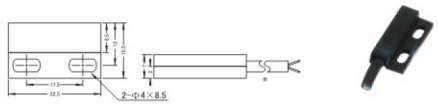


Chart 148 图148 MS-6

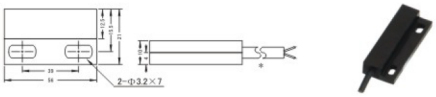


Chart 149 图149 SD-3

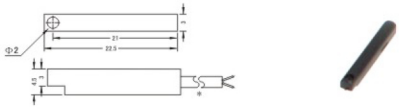


Chart 150 图150 SD-4

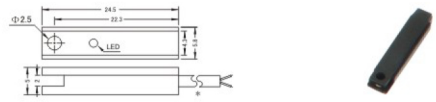


Chart 151 图151 SD-5

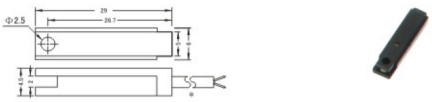


Chart 152 图152 D-Z73

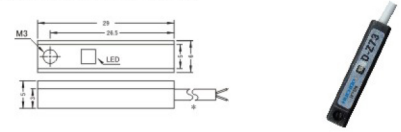


Chart 153 图153 D-A93

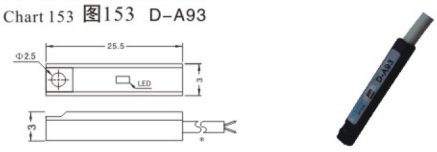


Chart 154 图154 CS1-G

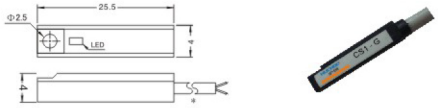


Chart 155 图155 SG-1

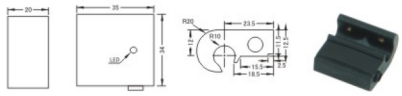


Chart 156 图156 SG-2

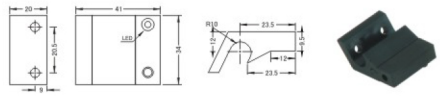


Chart 157 图157 YG-1

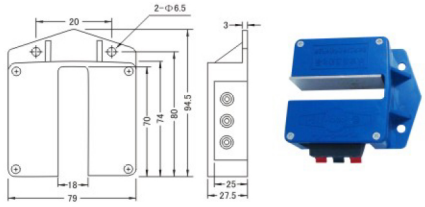


Chart 158 图158 MS-01

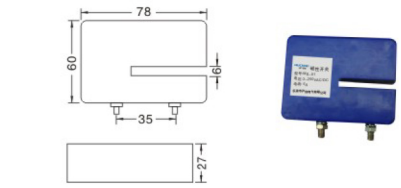
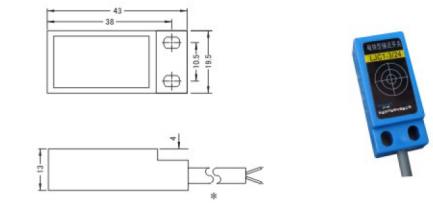


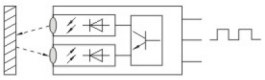
Chart 159 图159 LJC1-3/24



光电开关工作原理 Operation principle photoelectric switch

● 光电开关又称光电传感器，传感器分漫反射型、反馈反射型、对射型，传感器与PLC可编程控制器、单片机、非门电路、电子计数器、固态继电器、小型继电器等产品配磁使用。发射型对准目标不间断发射光束，接收器把接收到的光能量转换为电流传输给后面的检测线路，它能滤出有效信号和应用该信号。

Photoelectric switch say again photoelectric sensor, sensor points diffuse reflective type, feedback, DuiShe type, sensor and PLC and single-chip microcomputer, sr circuit, electronic counters, solid-state relay, small relays etc products with magnetic use. The transmitter aims at the target and generates light beam, and the receptor turns the light energy received into current and transmits it to the detection circuit backwards. It can filter out an effective signal and use it.

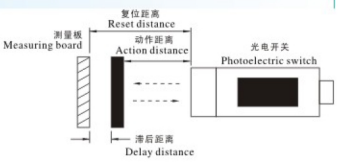


光电开关技术术语 Technical terms photoelectric switch

● **距离滞后** Distance delay

是指测量板靠近光电开关产生的动作距离和复位距离之差；滞后距离用开关的距离的百分比来表示。

It means the distance difference between the action distance and the reset distance produced when the measuring board approaches the photoelectric switch; the delay distance is shown as percent number of switch distance.



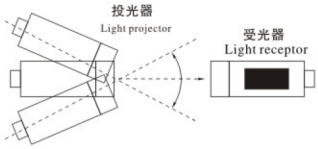
● **亮通/暗通** Light on / Dark on

类型 Type	图例 Illustration	暗通 Dark on (NO)	亮通 Light on (NC)
漫反射型光电开关 Diffuse reflection type photoelectric switch			
反射板型光电开关 Reflecting board type photoelectric switch			
对射型光电开关 Correlation type photoelectric switch			

● **指向角** Angle of spread

对射型、反射型能保证光电开关能稳定工作的角度范围。

Correlation type and reflection type can ensure the angle range for photoelectric switch to work steadily.

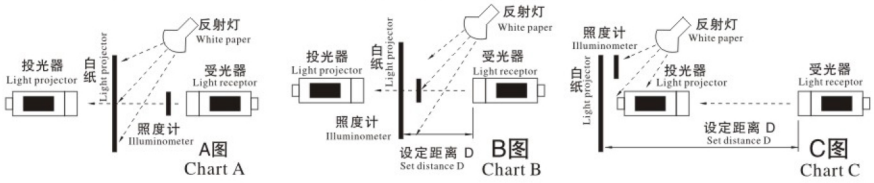


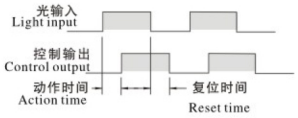
● **响应时间** Response time

指从光输入的上升、下降沿与相应的控制输出上升、下降沿距离间隔为动作或复位的迟后时间。(动作时间=复位时间)

It means the delay time when the distance difference is action distance or reset distance between the rise and fall edge of the light input, and the rise and fall edge of the relevant control output. (Action time = reset time).

● **工作环境照度** Illumination level of operational environment





(A图)当外部干扰受光器时给予影响，故将(A图)的测定作为外部干扰光照度的基准；在(B图)和(C图)，根据设定距离D及白板纸反射率等，对受光器的影响程度产生变化，基准变的不明确。

(Chart A) When surrounding environment interferes in the light receptor, it works, therefore, make the determination of Chart A as the criterion of the surrounding environment interference to the illumination level; in Chart B and Chart C, the interference degree of the light receptor changes in terms of the set distance D and white paper reflection ratio, therefore, the criterion becomes uncertain.

● **镜面抑制(MSR)功能** Mirror surface rejection function (MSR)

反馈反射型光电开关利用内装的偏光滤光器和回归反射的特点，只接收来自回归反射板光束的功能。通过投光部偏光滤光器的光束变为横向。

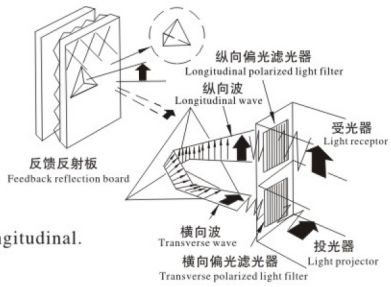
反射到回归反射板三角锥上的光束由横向变为纵向。

其反射光通过受光部的偏光滤光器到达受光元件。

Due to the built-in polarized light filter and the property of retro-reflection, the retro-reflection type photoelectric switch only accepts the light beam from the retro-reflection board. Through the light projection part, the light beam of polarized light filter becomes transverse.

The light beam reflected to the standard pyrometric cone of the retro-reflection board becomes from transverse to longitudinal.

The reflected light reaches the light receiving elements through the polarized light filter of the light receiving part.



- **反射板的盲区** Dead zone of reflection board

反射板在反射的过程中，有一段区域是反射板不能识别的区域，这段区域就是反射板的盲区。
During the reflection process, there is a part of area that the reflection board can't identify. This part of area is exactly the dead zone of reflection board.

- **恒定光** Constant light

是指辐射功率基本上是固定的光。
It means the light whose radiation power is basically constant.

- **检测范围** Detection range

是指光电开关与物体之间的最大可用距离。检测范围与发射光的强度、测量区域的环境状况、反射物体的情况有关。
It means the maximum available distance between the photoelectric switch and the object. Detection range is concerned with the reflection light in tensity, the environment state of measuring area and the reflection object condition.

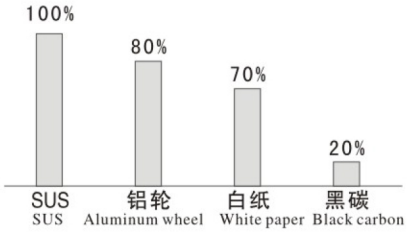
- **红外线**(IR**或**IRED) Infrared ray(IR or IRED)

是指一种辐射波长很长的光(λ=780nm到1mm)
It's a kind of light whose radiation wavelength is very long. (λ=780nm to 1mm)

- **反射性能** Reflection performance

是指目标的特性，它与目标表面构造和颜色、大小有着依赖关系；还与入射光是优或劣，定向的或漫反射的有关；无反射的部分是全吸收或者透射；反射型光电开关采用通用材料可以得到较好的反射距离。

It's the target's characteristic. It has dependency relationship with the surface structure, color and size of the target, in addition, whether the incident light is good or bad, whether it is directed of diffuse reflected and whether the mon-reflection part is totally absorbed or transmitted do matter. The reflection type photoelectric switch that adopts general material can achieve better reflcting distance.



- **调节器** Adjuster

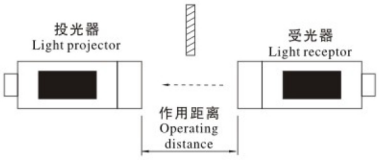
通过内置式电位器，在最小照度的情况下，使接收器能产生开关输出；由此可以在有效作用距离内将开关距离调节到最佳程度。
Through the built–in potential meter and under the circumstance of the minimum illumination level, it makes the receptor produce switch output, therefore, the switch distance can be adjusted to the best state inside the range of the effective distance.

光电开关分类 Photoelectric switch classification

- **对射型光电开关** Correlation type photoelectric switch

对射型光电开关由投光器、受光器组成，结构上两者是相互分离的；辨别不透明的反光物体；有效距离大，因为光束跨越感应距离的时间仅一次；不易受干扰；装置的消费高，两个单元都必须敷设电缆。

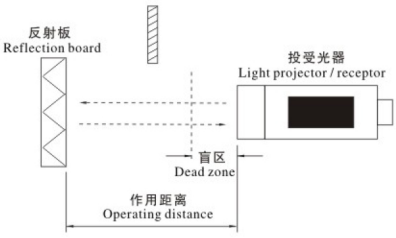
Correlation type photoelectric switch is made up of light projector and light receptor, and the both are respectively separated in structure; Distinguish the opaque reflective cbject; Large effective distance, for the light beam crosses the sensing distance only ince; Not vulnerable to be interfered; The equipment has high consumption, so cables must be laid out on the two units.



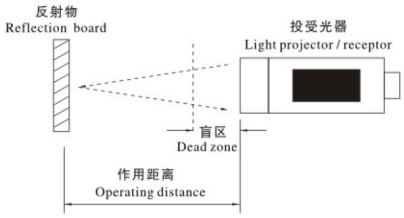
- **反馈反射型光电开关** Feedback reflective photoelectric switch

反馈反射型光电开关由投光器和受光器构成的情况是一种标准配置。从发送器来的光束，在对面的反射镜被反射，既返回受光器。光的通过时间是两倍的信号持续时间；当光束被中断时产生一个开关变化。辨别不透明的反光物体；透明玻璃识别标志可以借助于特殊的传感器；当带有偏振滤光镜的传感器使用时，反射目标成为可靠的识别(可参见MSR功能)；借助反射镜部件，形成高的有效距离范围；不易受干扰。

Feedback reflective photoelectric switch is made up of light projector and light receptor, which is one of standard configurations. The light beam from the projector is reflected by the opposite mirror, and then goes back to the light receptor. The transit time is twice the signal's duration time; a switch change comes into being when the light beam breaks. Distinguish the opaque reflective object; Transparent glass identification mark can be made of special sensor; When the sensor with polaroid filter works, the reflective target becomes a reliable identification (See MSR function); High effective distance range is available with the help of reflective mirror parts; Not vulnerable to be interfered



漫反射型光电开关 Diffuse reflection type photoelectric switch



漫反射型光电开关由投光器和受光器构成的情况是一种标准配置。从发送器来的光速时，目标产品漫反射；当有足够的组合光返回受光器时，开关状态发生变化；有效作用距离是由目标的反射能力决定的，是由表面性质和颜色决定的。带有灵敏度调节器的变化能力可起到补偿作用；较小的装配开支，光传感器由单个元件组成时，通常可以达到粗定位；采用背景抑制功能调节测量距离；对目标上的灰尘敏感和对目标变化了的反射性能敏感。

Diffuse reflection type photoelectric switch is made up of light projector and light receptor, which is one of standard configurations. When the light beam comes from the projuctor, the target creates diffuse reflection; when there is enough combination light back to the light receptor, the switch state will change; Effective operating distance depends on the reflectibe capacity of the target, as well as the surface property and color. Teh change capacity with sensitivity adjuster can assume compensation action; The equipment has lower consumption. When the optical sensor is made up of a single element, rough location can usually be achieved; Adopts the function of background rejection to regulate the measuring distance; sensitive to the dust on the target and sensitive to the changed reflective performance of the target.

光纤传感器 Optical fiber sensor

检测微小物体(最小为0.5mm)；用高级合金钢为外包装，可以在高温环境中使用；对有约束的安装状况的适宜的。

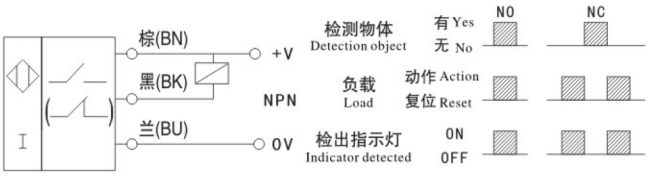
Detect micro-objects(Minimum 0.5mm); Use high-calss alloy steel as extenrnal packing, which can work in the high temperature environment; Suitable to the installation condition which has restriction.

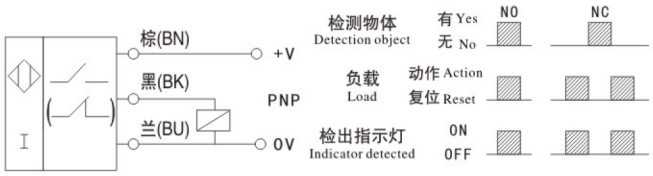
光电开关输出型式和电气特性 Electrical Characteristics & Output Form of Photoe lectric Switch

直流三线制(N,P型)NO或NC DC three-wire system (N, P type) NO or NC

这些开关的负载和供电电源分开连接；有极性，短路和过载保护功能，剩余 电流可以忽略。

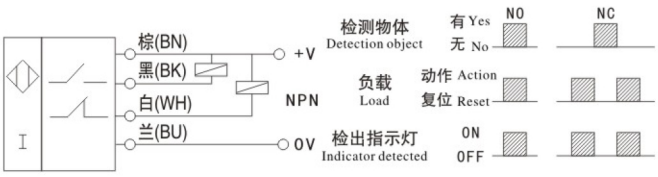
The load of these switches connects separately with the power supply, owning the functions of polarity, short-circuit and over-load protection. The residual current can be neglected.

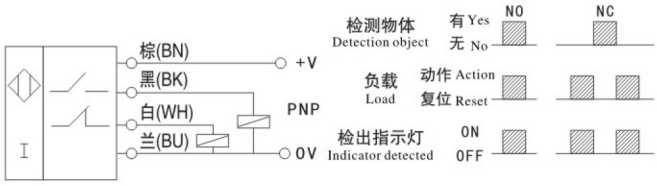




直流四线制(N,P型)NO加NC DC four-wire system (N, P type) NO plus NC

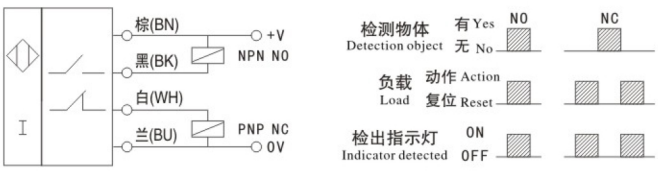
这些开关可提供常开，常闭两组输出。The switches can provide two groups of output NO and NC.

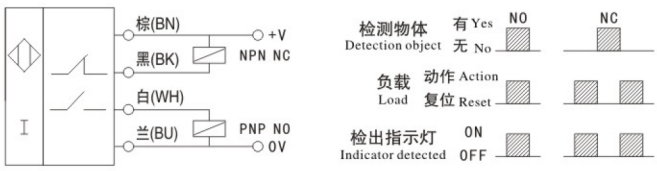




直流四线制(X型) DC four-wire system (X type)

NPN,PNP,NO,NC四合种输出方式可转换 The four output modes can be converted among NPN, PNP, NO and NC

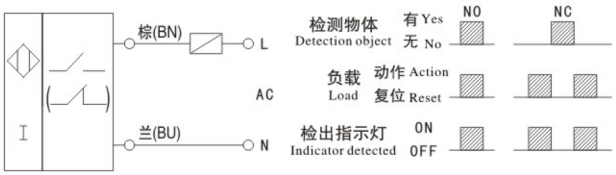




● 交流二线制NO或NC AC two-wire system NO or NC

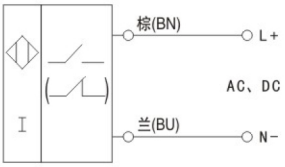
负载必须串联在传感器内进行工作在开路状态，在闭路状态，开关元件上有一个较小的电压降

The load must be series connected inside the sensor and work, and on closed-circuit state, there is a minor voltage drop on the switch elements.



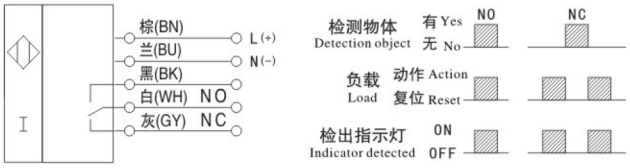
● 交流、直流(AC,DC型)二线制发射器

AC、DC(AC,DCtype)Two-wire system reflector



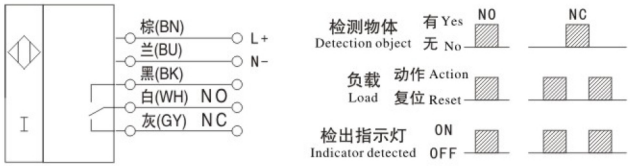
● 交流、直流五线制(AC、DC型)继电器输出

AC、DC five-wire system (AC、DC type) relay output



● 交直流五线制(AC加DC型)继电器输出

ACDC five-wire system (AC plus DC type) relay output



光电开关的并联、串联（请参照接近开关的参数）Series and parallel connection of photoelectric switch(See the parameters of proximiyt switch)

光电开关注意事项 Matters Needing Attention when using photoelectric switch

● **防止相互干扰的方法** Ways to avoid mutual interference

光电开关接近设置时，另一个开关的光入射时造成的不稳定动作，叫做相互干扰；投光器、受光器相互次交叉安装；反射式并列使用时，相互间隔须维持设定距离在检测距离的1.4倍以上；对射式并列使用时，相互间隔须维持设定距离在检测距离的0.4倍以上。

When the photoelectric switch approaches to the equipment, the light from another switch emits, causing unsteady action, which is called mutual interference; The light projector and the light receptor are cross-installed mutually; When the reflection type is used together, the distance between them must be kept, and the set distance is 1.4 times of detection distance; When the correlation type is used together, the distance between them must be kept, and the set distance is 0.4 times of detection distance.

● **其它注意事项** Other matters needing attention

光电开关的配线应单独配金属软管，请不要与电力线，动作线一起在同一金属软管内；电源电压请在电源电压范围内使用。

The Photoelectric switch must be equipped individually with metal flexible pipe, and don't make it with the electric line and power line in the same metal flexible pipe; The supply voltage must inside the supply voltage range.

● **下列安装场合使用时会造成误动作，请加以注意** Misoperation may be caused in thd following installation locations and pay att ention

灰尘较多的场合；腐蚀性气体较多的场合；水、油、药济直接溅散的场合；太阳光等强光直接照射的场合；使用时的环境温湿度应在额定范围内。

Where there is more dust; Where there is more corrosive gas; Where water, oil and drugs are sprayed straightly; Where intense light such as sun light shines directly; When it's during the use, the ambient temperature and hu midity must be inside the rated range.

● **关于维护检修** About maintenance and repair

检测物体及光电开关的安装位置有无偏移，松动；配线、连接部位有无松动，接触不良，断线；有无附粘灰尘等堆积物；使用温度条件，周围环境条件有无异常；检测距离有无异常。

Check whether there is any movement or looseness about the installation sites of the object and photoelectric switch; Check whether there is any looseness, bad contact or disconnection about the equipped line and connecting parts; Check whether there is any deposit adhered, such as dust; Check whether the operating temperature condition and ambient environment condition are abnormal; Check whether the detection distance is abnormal.

圆柱型能与国内外各相同品种直接替换 The columned can with various domestic same species directly replaced

- 电源反接保护、短路保护，可直接与PLC相联接 — Power supply reversal connection protection; short-circuit protection, can directly connect with PLC
- 新增电流过载保护 — Newly added current over-load protection
- 长寿命和高可靠性，耐环境性强 — Long service life, high reliability and strong resistance property to environment
- 红色LED显示可以检测传感器工作状态 — Red LED indicates that it's available to detect the sensor operating state
- 新增金属外壳形，增大了安装强度 — Newly added metal housing to improve the installation intensity
- 增加外壳强度和断线的对策 — Countermeasure to improve the housing intensity and to solve disconnection
- M8对射已试制推出 — M8 correlation has been trial-produced and promoted
- IP67防护结构（IEC规格） — IP67 protection structure (IEC specification)
- 使用前请先阅读产品说明书的“注意事项” — Read the “Matters needing attention” of the Product Instruction before use

型号规格 Type and Specification

尺寸 Dimension				M8×1		M12×1		M18×1			
检测方式 Detection method				漫反射式 Diffuse type	对射式 DuiShe type	漫反射式 Diffuse type	对射式 DuiShe type	漫反射式 Diffuse type		反馈反射式 Feedback reflex	对射式 DuiShe type
型号 Type	直流型 DC type	NPN	NO	E3F2-DS3C4	E3F2-2DN1-2L	E3F1-DS5C4	E3F1-3DN1-3L	E3F-DS10C4	E3F-DS30C4	E3F-R2NK	E3F-5DN1-5L
			NC	E3F2-DS3B2	E3F2-2DN2-2L	E3F1-DS5B2	E3F1-3DN2-3L	E3F-DS10B2	E3F-DS30B2	E3F-R2N2	E3F-5DN2-5L
			NO+NC					E3F-DS10C3	E3F-DS30C3	E3F-R2N3	E3F-5DN3-5L
		PNP	NO	E3F2-DS3P1	E3F2-2DP1-2L	E3F1-DS5P1	E3F1-3DP1-3L	E3F-DS10P1	E3F-DS30P1	E3F-R2PK	E3F-5DP1-5L
			NC	E3F2-DS3P2	E3F2-2DP2-2L	E3F1-DS5P2	E3F1-3DP2-3L	E3F-DS10P2	E3F-DS30P2	E3F-R2P2	E3F-5DP2-5L
			NO+NC					E3F-DS10P3	E3F-DS30P3	E3F-R2P3	E3F-5DP3-5L
		NPN/PNP/NO/NC						E3F-DS10X	E3F-DS30X	E3F-R2X	E3F-5DX-5L
	交流型 AC type	二线 Two-wire	NO					E3F-DS10Y1	E3F-DS30Y1	E3F-R2Y1	E3F-5DY1-5LY
			NC					E3F-DS10Y2	E3F-DS30Y2	E3F-R2Y2	E3F-5DY2-5LY
		三线NO Three-wire No									
		继电器输出 Relay output									
检测范围 Detection range				3cm±10%	2m±10%	5cm±10%	3m±10%	10cm±10%	10-30cm±10%	2m±10%	5m±10%
检测目标 Detection target				透明/不透明物体 Transparent / Opaque object	不透明物体 Opaque object	透明/不透明物体 Transparent / Opaque object	不透明物体 Opaque object	透明/不透明物体 Transparent / Opaque object	透明/不透明物体 Transparent / Opaque object	不透明物体 Opaque object	不透明物体 Opaque object
检测范围调节 Detection range regulation				固定 Fixed	固定 Fixed	固定 Fixed	固定 Fixed	固定 Fixed	灵敏度调节器 Sensitivity adjuster	灵敏度调节器 Sensitivity adjuster	固定 Fixed
响应时间 Respnose time				1ms	1ms	1ms	1ms	1ms	1ms	1ms	1ms
图例 Illustration				图160 Chatr160		图161 Chatr161		图162 Chatr162			

型号规格 Type and Specification

尺寸 Dimension				M18×1				M30×1.5			M18×1
检测方式 Detection method				漫反射式 Diffuse type		反馈反射式 Feedback reflex	对射式 DuiShe type	漫反射式 Diffuse type	反馈反射式 Feedback reflex	对射式 DuiShe type	漫反射式 Diffuse type
型号 Type	直流型 DC type	NPN	NO	E3F3-D11	E3F3-D12	E3F3-R11	E3F3-T11	E3F3-DS70N1	E3F3-R4NK	E3F3-10DN1-10L	
			NC	E3F3-D61	E3F3-D62	E3F3-R61	E3F3-T61	E3F3-DS70N2	E3F3-R4N2	E3F3-10DN2-10L	
			NO+NC					E3F3-DS70N3	E3F3-R4N3	E3F3-10DN3-10L	CDD-11N(40N)
		PNP	NO	E3F3-D31	E3F3-D32	E3F3-R31	E3F3-T31	E3F3-DS70P1	E3F3-R4PK	E3F3-10DP1-10L	
			NC	E3F3-D81	E3F3-D82	E3F3-R81	E3F3-T81	E3F3-DS70P2	E3F3-R4P2	E3F3-10DP2-10L	
			NO+NC					E3F3-DS70P3	E3F3-R4P3	E3F3-10DP3-10L	CDD-11P(40P)
		NPN/PNP/NO/NC									
	交流型 AC type	二线 Two-wire	NO					E3F-DS70Y1	E3F3-R4Y1	E3F-10DY1-10LY	
			NC					E3F-DS70Y2	E3F3-R4Y2	E3F-10DY2-10LY	
		三线NO Three-wire No									
		继电器输出 Relay output									
检测范围 Detection range				10cm±10%	10-30cm±10%	3m±10%	5m±10%	70cm±10%	4m±10%	10m±10%	10~30cm±10%
检测目标 Detection target				透明/不透明物体 Transparent / Opaque object	透明/不透明物体 Transparent / Opaque object	不透明物体 Opaque object	不透明物体 Opaque object	透明/不透明物体 Transparent / Opaque object	不透明物体 Opaque object	不透明物体 Opaque object	不透明物体 Opaque object
检测范围调节 Detection range regulation				灵敏度调节器 Sensitivity adjuster	灵敏度调节器 Sensitivity adjuster	灵敏度调节器 Sensitivity adjuster	固定 Fixed	灵敏度调节器 Sensitivity adjuster	灵敏度调节器 Sensitivity adjuster	固定 Fixed	灵敏度调节器 Sensitivity adjuster
响应时间 Respnose time				1ms	1ms	1ms	1ms	1ms	1ms	1ms	1ms
图例 Illustration				图163 Chatr163				图164 Chatr164			图165 Chatr165

特性参数 Characteristic parameters

接通延时：1.5ms
光源：红外光660nm
电源电压：直流型：DC12~24V(6~36V)脉动(p-p)10%以下，
交流型：AC110~220V(90~250V)50/60Hz
消耗电流：N.P型：20mA以下，A型：1.7mA以下
控制输出：N.P型：300mA以下，A型：400mA以下，J型：2A以下(触点寿命：10万次)
回路保护：N.P.D型：逆连接保护、浪涌吸收、负载短路保护，A型：浪涌吸收
环境温、湿度：动作时、保存时：各-30~65℃(不结冰、不结露)，
动作时、保存时：各35~95%RH
绝缘阻抗：50MΩ以上(DC500兆欧表)充电部分与外壳间
耐电压：AC1000V 50/60Hz 1min充电部分与外壳间
温度的影响：温度范围-30~+65℃，+23℃时、±15%检测距离以内，
温度范围-25~+60℃,+23℃时、 ±10%检测距离以内
电压的影响：额定电源电压范围±15%以内、额定电源电压值时、±10%检测距离以内
保护构造：IP67(IEC规格)
材质：(外壳：黄铜镀镍 ABS) (检测面(透镜)：PMMA)

Connection delay：1.5ms.
Light source：Infrared light 660nm.
Supply voltage：DC type: DC12-24V(6-36V) Impulse (p-p) 10% below,
AC type:AC110-220V(90-250V) 50/60Hz.
Consumption current：N.P type: 20mA below, A type: 1.7mA below.
Control output：N.P type: 300mA below, A type: 400mA below, J type: 2A below
(contact service life: 0.1 million times).
Loop protection：N.P..D type: reversal connection protection, surge absorption,
load short-circuit protection, A type: surge absorption
Ambient temperature & humidity：During operation, storage: individually
-30~+65℃ (no freeze, no drew), During
operation, storage: individually 35~95%RH.
Insulation impedance：50MΩabove (DC500 megameter) between charging part
and housing.
Withstand voltage：AC1000V 50/60Hz 1min between charging part and housing
Temperature influence：Temperature range -30~+65℃, at +23℃, ±15% detection
distance; temperature range -25~+60℃, at +23℃, ±10%
detection distance.
Voltage influence：Inside ±15% rated supply voltage range, at rated supply
voltage value, inside ±10% detection distance.
Protection structure：IP67 (IEC specification).
Material：Housing： Nickel plated brass (ABS)
Detection surface (lens)：PMMA.

外形尺寸(mm) External dimension

Chart 160 图160 E3F2 -□

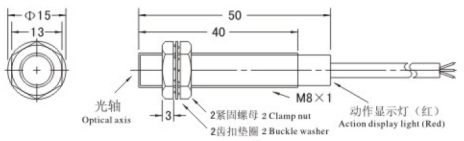


Chart 161 图161 E3F1-□

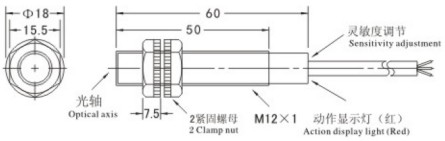


Chart 162 图162 E3F-□

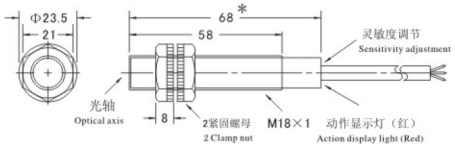


Chart 163 图163 E3F3-□ (进口型 Import type)

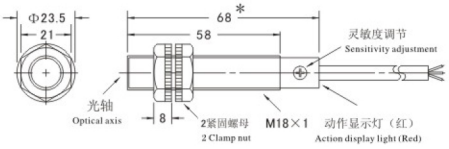


Chart 164 图164 E3F3-□

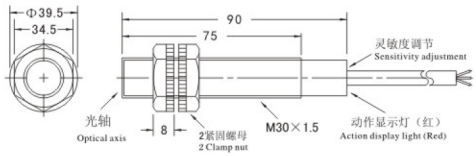
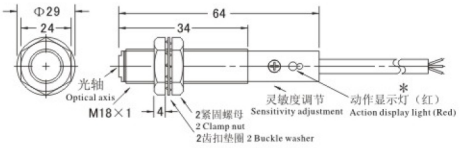


Chart 166 图165 CDD-□



方型能与国内外各相同品种直接替换 Square model can with various domestic same species directly replaced

- 功能齐全，内置继电器，可驱动大电流负载 — Multiple functions, built-in relay, can drive high current load
- 配线型及接线端子型 — Cabling type and connection terminal type
- 长寿命和高可靠性，耐环境性强 — Long service life, high reliability and strong resistance property to environment
- 红色LED显示可以检测传感器工作状态 — Red LED indicates that it's available to detect the sensor operating state
- 可提供延时输出型 — Countermeasure to improve the housing intensity and to solve disconnection
- 增加外壳强度和断线的对策 — Can provide time-delay output type
- IP65防护结构(IEC规格) — IP65 protection structure (IEC specification)
- 使用前请先阅读产品说明书的“注意事项” — Read the “Matters needing attention” of the Product Instruction before use

规格型号 Type and Specification

尺寸 Dimension		18×50×50			25×65×75			20×43×60		
检测方式 Detection method		漫反射式 Diffuse type	反馈反射式 Feedback reflection type	对射式 DuiShe type	漫反射式 Diffuse type	反馈反射式 Feedback reflection type	对射式 DuiShe type	漫反射式 Diffuse type	反馈反射式 Feedback reflection type	对射式 DuiShe type
型号 Type 继电器输出 Relay output	直流亮通 DC illuminate	E3JK-DS30M1	E3JK-R4M1	E3JK-5DM1-5L	E3JM-DS70M4	E3JM-R4M4	E3JM-10DM4-10L	E3K60-DS70M1	E3K60-R4M1	E3K60-5DM1-5L
	交流亮通 AC illuminate	E3JK-DS30M1	E3JK-R4M1	E3JK-5DM1-5L	E3JM-DS70M4	E3JM-R4M4	E3JM-10DM4-10L	E3K60-DS70M1	E3K60-R4M1	E3K60-5DM1-5L
	直流暗通 DC non-illuminate	E3JK-DS30M2	E3JK-R4M2	E3JK-5DM2-5L	E3JM-DS70M2	E3JM-R4M2	E3JM-10DM2-10L	E3K60-DS70M2	E3K60-R4M2	E3K60-5DM2-5L
	交流暗通 AC non-illuminate	E3JK-DS30M2	E3JK-R4M2	E3JK-5DM2-5L	E3JM-DS70M2	E3JM-R4M2	E3JM-10DM2-10L	E3K60-DS70M2	E3K60-R4M2	E3K60-5DM2-5L
检测范围 Detection range		30cm±10%	4m±10%	5m±10%	70cm±10%	4m±10%	10m±10%	70cm±10%	4m±10%	5m±10%
检测目标 Detection target		透明/不透明物体 Transparent / Opaque object	不透明物体 Opaque object	不透明物体 Opaque object	透明/不透明物体 Transparent / Opaque object	不透明物体 Opaque object	不透明物体 Opaque object	透明/不透明物体 Transparent / Opaque object	不透明物体 Opaque object	不透明物体 Opaque object
检测范围调节 Detection range regulation		灵敏度调节器 Sensitivity adjuster	灵敏度调节器 Sensitivity adjuster	固定 Fixed	灵敏度调节器 Sensitivity adjuster	灵敏度调节器 Sensitivity adjuster	固定 Fixed	灵敏度调节器 Sensitivity adjuster	灵敏度调节器 Sensitivity adjuster	固定 Fixed
响应时间 Respnose time		30ms	30ms	30ms	30ms	30ms	30ms	30ms	30ms	30ms
图例 Illustration		图166 Chatr166			图167 Chatr167			图168 Chatr168		

规格型号 Type and Specification

尺寸 Dimension		26×63×78			24×53.5×80			36×69×100		
检测方式 Detection method		漫反射式 Diffuse type	反馈反射式 Feedback reflection type	对射式 DuiShe type	漫反射式 Diffuse type	反馈反射式 Feedback reflection type	对射式 DuiShe type	漫反射式 Diffuse type	反馈反射式 Feedback reflection type	对射式 DuiShe type
型号 Type 继电器输出 Relay output	直流亮通 DC illuminate	E3K78-DS80M1	E3K78-R4M1	E3K78-5DM1-5L	E3K80-DS80M1	E3K80-R4M1	E3K80-5DM1-5L	E3K100-DS100M1	E3K100-R4M1	E3K100-10DM1-10L
	交流亮通 AC illuminate	E3K78-DS80M1	E3K78-R4M1	E3K78-5DM1-5L	E3K80-DS80M1	E3K80-R4M1	E3K80-5DM1-5L	E3K100-DS100M1	E3K100-R4M1	E3K100-10DM1-10L
	直流暗通 DC non-illuminate	E3K78-DS80M2	E3K78-R4M2	E3K78-5DM2-5L	E3K80-DS80M2	E3K80-R4M2	E3K80-5DM2-5L	E3K100-DS100M2	E3K100-R4M2	E3K100-10DM2-10L
	交流暗通 AC non-illuminate	E3K78-DS80M2	E3K78-R4M2	E3K78-5DM2-5L	E3K80-DS80M2	E3K80-R4M2	E3K80-5DM2-5L	E3K100-DS100M2	E3K100-R4M2	E3K100-10DM2-10L
检测范围 Detection range		80cm±10%	4m±10%	5m±10%	80cm±10%	4m±10%	5m±10%	100cm±10%	4m±10%	10m±10%
检测目标 Detection target		透明/不透明物体 Transparent / Opaque object	不透明物体 Opaque object	不透明物体 Opaque object	透明/不透明物体 Transparent / Opaque object	不透明物体 Opaque object	不透明物体 Opaque object	透明/不透明物体 Transparent / Opaque object	不透明物体 Opaque object	不透明物体 Opaque object
检测范围调节 Detection range regulation		灵敏度调节器 Sensitivity adjuster	灵敏度调节器 Sensitivity adjuster	固定 Fixed	灵敏度调节器 Sensitivity adjuster	灵敏度调节器 Sensitivity adjuster	固定 Fixed	灵敏度调节器 Sensitivity adjuster	灵敏度调节器 Sensitivity adjuster	固定 Fixed
响应时间 Respnose time		30ms	30ms	30ms	30ms	30ms	30ms	30ms	30ms	30ms
图例 Illustration		图169 Chatr169			图170 Chatr170			图171 Chatr171		

规格型号 Type and Specification

尺寸 Dimension		18×50×50		
检测方式 Detection method		漫反射式 Diffuse type	反馈反射式 Feedback reflection type	对射式 DuiShe type
型号 Type	交直流继电器输出 DC relay output	BEN300-DFR	BEN5M-MFR	BEN10M-TFR
	亮通暗通可调 Adjustable light pass through the dark			
检测范围 Detection range		30cm±10%	5m±10%	10m±10%
检测目标 Detection target		透明/不透明物体 Transparent / Opaque object	不透明物体 Opaque object	不透明物体 Opaque object
检测范围调节 Detection range regulation		灵敏度调节器 Sensitivity adjuster	灵敏度调节器 Sensitivity adjuster	固定 Fixed
响应时间 Respnose time		30ms	30ms	30ms
图例 Illustration		图172 Chatr172		

特性参数 Characteristic parameters

接通延时：1.5ms
光源：红外光660nm
电源电压：直流型：DC12~24V脉动(p-p)10%以下，
交流型：AC110~220V(90~250V)50/60Hz
交直流型：DC12~240V/AC24~240V,50/60Hz
功率电流：3VA以下
控制输出：2A以下(触点寿命：10万次)
允许冲动和振动：B≤30g，T≤11ms，f≤55Hz，a≤1mm
环境温、湿度：动作时、保存时：各-30~65℃(不结冰、不结露)，
动作时、保存时：各35~95%RH
绝缘阻抗：50MΩ以上(DC500兆欧表)充电部分与外壳间
耐电压：AC1000V 50/60Hz 1min充电部分与外壳间
温度的影响：温度范围-30~+65℃，+23℃时、±15%检测距离以内，
温度范围-25~+60℃,+23℃时、±10%检测距离以内
电压的影响：额定电源电压范围±15%以内、额定电源电压值时、±10%检测距离以内
保护构造：IP65(IEC规格)
材质：(外壳：铝压铸 ABS)　(检测面(透镜)：PMMA)

Connection delay：1.5ms.
Light source：Infrared light 660nm.
Supply voltage：DC type: DC12-24V(6-36V) Impulse (p-p) 10% below,
AC type:AC110-220V(90-250V) 50/60Hz.
DC&AC type:DC12~240V/AC24-240V,50/60Hz.
Power current：3V below
Control output：2A below(contact service life: 0.1 million times).
Impulsion and vibration are allowed：B≤30g，T≤11ms，f≤55Hz，a≤1mm
Ambient temperature & humidity：During operation, storage: individually
-30~+65℃ (no freeze, no drew), During
operation, storage: individually 35~95%RH.
Insulation impedance：50MΩabove (DC500 megameter) between charging part
and housing.
Withstand voltage：AC1000V 50/60Hz 1min between charging part and housing
Temperature influence：Temperature range -30~+65℃, at +23℃, ±15% detection
distance; temperature range -25~+60℃, at +23℃, ±10%
detection distance.
Voltage influence：Inside ±15% rated supply voltage range, at rated supply
voltage value, inside ±10% detection distance.
Protection structure：IP65 (IEC specification).
Material：Housing： Nickel plated brass (ABS) Detection surface (lens)：PMMA.

外形尺寸(mm) External dimension

Chart 166 图166 E3JK-□

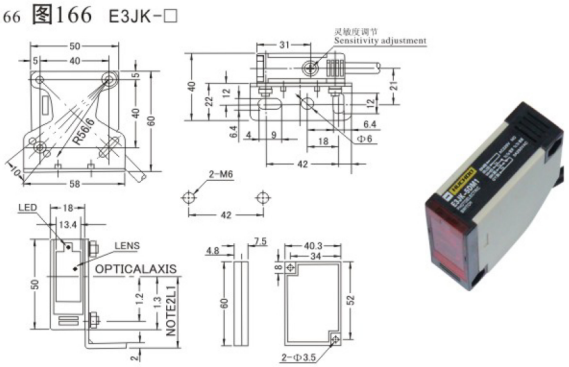


Chart 167 图167 E3JM-□

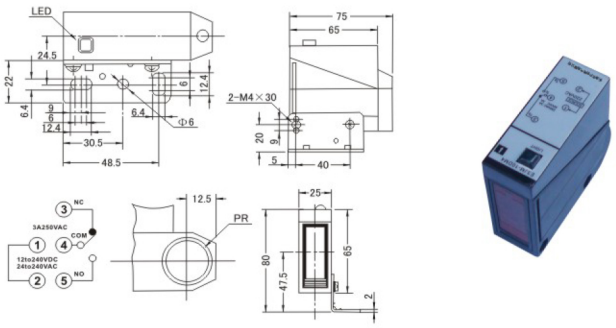


Chart 168 图168 E3K60-□

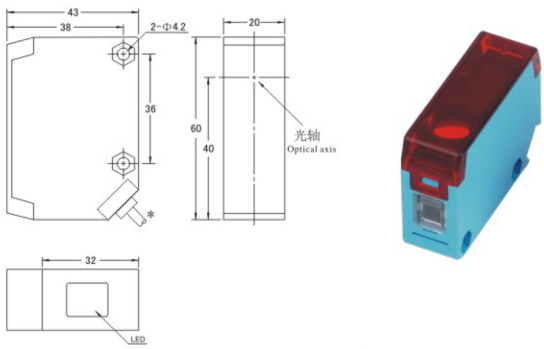


Chart 169 图169 E3K78-□

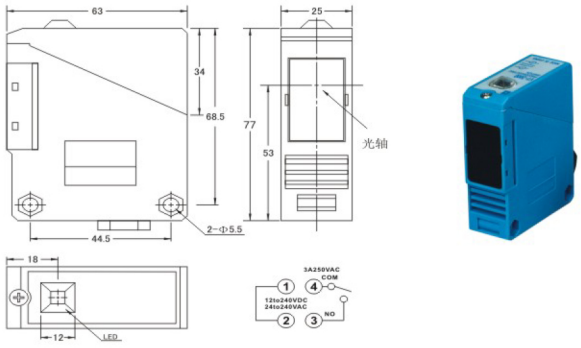


Chart 170 图170 E3K80-□

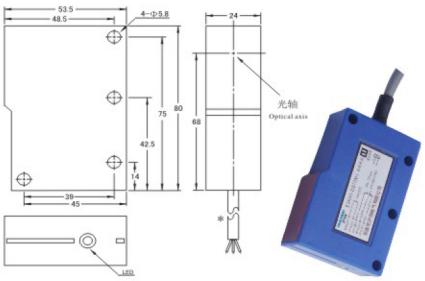


Chart 171 图171 E3K100-□

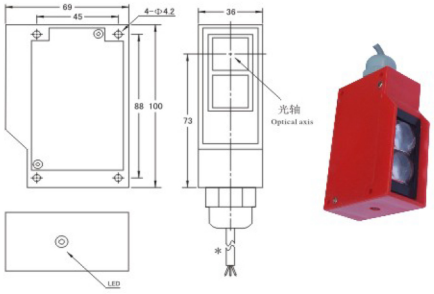
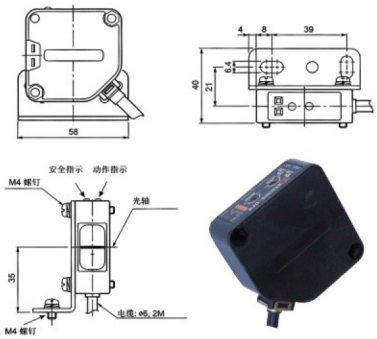


Chart 172 图172 BEN□-□



方型能与国内外各相同品种直接替换 Square model can with various domestic same species directly replaced

- 电源反接保护、短路保护，可直接与PLC相联接 — Power supply reversal connection protection; short-circuit protection, can directly connect with PLC
- 新增电流过载保护 — Newly added current over-load protection
- 长寿命和高可靠性，耐环境性强 — Long service life, high reliability and strong resistance property to environment
- 红色LED显示可以检测传感器工作状态 — Red LED indicates that it's available to detect the sensor operating state
- 新增金属外壳形，增大了安装强度 — Newly added metal housing to improve the installation intensity
- 增加外壳强度和断线的对策 — Countermeasure to improve the housing intensity and to solve disconnection
- IP65防护结构(IEC规格) — IP65 protection structure (IEC specification)
- 使用前请先阅读产品说明书的“注意事项” — Read the “Matters needing attention” of the Product Instruction before use

规格型号 Type and Specification

尺寸 Dimension			26×56×76			27×60×85			51×76×73		
检测方式 Detection method			漫反射式 Diffuse type	反馈反射式 Feedback reflection type	对射式 DuiShe type	漫反射式 Diffuse type	反馈反射式 Feedback reflection type	对射式 DuiShe type	漫反射式 Diffuse type	对射式 DuiShe type	
型号 Type	继电器输出 Relay output	直流亮通 DC illuminate	E3K76-DS60M1	E3K76-R2M1	E3K76-5DM1-5L	E3K85-DS60M1	E3K85-R2M1	E3K85-5DM1-5L	GKF-2	GDK-5	GDK-50
		交流亮通 AC illuminate	E3K76-DS60M1	E3K76-R2M1	E3K76-5DM1-5L	E3K85-DS60M1	E3K85-R2M1	E3K85-5DM1-5L	GKF-2	GDK-5	GDK-50
		直流暗通 DC non-illuminate	E3K76-DS60M2	E3K76-R2M2	E3K76-5DM2-5L	E3K85-DS60M2	E3K85-R2M2	E3K85-5DM2-5L			
		交流暗通 AC non-illuminate	E3K76-DS60M2	E3K76-R2M2	E3K76-5DM2-5L	E3K85-DS60M2	E3K85-R2M2	E3K85-5DM2-5L			
检测范围 Detection range			60cm±10%	2m±10%	5m±10%	60cm±10%	2m±10%	5m±10%	50cm±10%	5m±10%	50m±10%
检测目标 Detection target			透明/不透明物体 Transparent / Opaque object	不透明物体 Opaque object	不透明物体 Opaque object	透明/不透明物体 Transparent / Opaque object	不透明物体 Opaque object	不透明物体 Opaque object	透明/不透明物体 Transparent / Opaque object	不透明物体 Opaque object	不透明物体 Opaque object
检测范围调节 Detection range regulation			灵敏度调节器 Sensitivity adjuster	灵敏度调节器 Sensitivity adjuster	固定 Fixed	灵敏度调节器 Sensitivity adjuster	灵敏度调节器 Sensitivity adjuster	固定 Fixed	灵敏度调节器 Sensitivity adjuster	固定 Fixed	固定 Fixed
响应时间 Respnose time			30ms	30ms	30ms	30ms	30ms	30ms	30ms	30ms	30ms
图例 Illustration			图173 Chatr173			图174 Chatr174			图175 Chatr175		

规格型号 Type and Specification

尺寸 Dimension			13×35×40			13×43.5×50			17.5×32.5×75		
检测方式 Detection method			漫反射式 Diffuse type	反馈反射式 Feedback reflection type	对射式 DuiShe type	漫反射式 Diffuse type	反馈反射式 Feedback reflection type	对射式 DuiShe type	漫反射式 Diffuse type	反馈反射式 Feedback reflection type	对射式 DuiShe type
型号 Type	直流型 DC type	NPN NO	E3K40-DS30N1	E3K40-R2N1	E3K40-5DN1-5L	E3K50-DS30N1	E3K50-R2N1	E3K50-5DN1-5L	E3K75-DS30N1	E3K75-R2N1	E3K75-5DN1-5L
		NPN NC	E3K40-DS30N2	E3K40-R2N2	E3K40-5DN2-5L	E3K50-DS30N2	E3K50-R2N2	E3K50-5DN2-5L	E3K75-DS30N2	E3K75-R2N2	E3K75-5DN2-5L
		PNP NO	E3K40-DS30P1	E3K40-R2P1	E3K40-5DP1-5L	E3K50-DS30P1	E3K50-R2P1	E3K50-5DP1-5L	E3K75-DS30P1	E3K75-R2P1	E3K75-5DP1-5L
		PNP NC	E3K40-DS30P2	E3K40-R2P2	E3K40-5DP2-5L	E3K50-DS30P2	E3K50-R2P2	E3K50-5DP2-5L	E3K75-DS30P2	E3K75-R2P2	E3K75-5DP2-5L
检测范围 Detection range			30cm±10%	2m±10%	5m±10%	30cm±10%	2m±10%	5m±10%	30cm±10%	2m±10%	5m±10%
检测目标 Detection target			透明/不透明物体 Transparent / Opaque object	不透明物体 Opaque object	不透明物体 Opaque object	透明/不透明物体 Transparent / Opaque object	不透明物体 Opaque object	不透明物体 Opaque object	透明/不透明物体 Transparent / Opaque object	不透明物体 Opaque object	不透明物体 Opaque object
检测范围调节 Detection range regulation			灵敏度调节器 Sensitivity adjuster	灵敏度调节器 Sensitivity adjuster	固定 Fixed	灵敏度调节器 Sensitivity adjuster	灵敏度调节器 Sensitivity adjuster	固定 Fixed	灵敏度调节器 Sensitivity adjuster	灵敏度调节器 Sensitivity adjuster	固定 Fixed
响应时间 Respnose time			1ms	1ms	1ms	1ms	1ms	1ms	1ms	1ms	1ms
图例 Illustration			图176 Chatr176			图177 Chatr177			图178 Chatr178		

规格型号 Type and Specification

尺寸 Dimension			15.5×58.5×64			23×61×63			26×45.5×86		
检测方式 Detection method			漫反射式 Diffuse type	反馈反射式 Feedback reflection type	对射式 DuiShe type	漫反射式 Diffuse type	反馈反射式 Feedback reflection type	对射式 DuiShe type	漫反射式 Diffuse type	反馈反射式 Feedback reflection type	对射式 DuiShe type
型号 Type	直流型 DC type	NPN NO	E3K64-DS30N1	E3K64-R2N1	E3K64-5DN1-5L	E3K63-DS50N1	E3K63-R2N1	E3K63-5DN1-5L	E3K86-DS30N1	E3K86-R2N1	E3K86-5DN1-5L
		NPN NC	E3K64-DS30N2	E3K64-R2N2	E3K64-5DN2-5L	E3K63-DS50N2	E3K63-R2N2	E3K63-5DN2-5L	E3K86-DS30N2	E3K86-R2N2	E3K86-5DN2-5L
		PNP NO	E3K64-DS30P1	E3K64-R2P1	E3K64-5DP1-5L	E3K63-DS50P1	E3K63-R2P1	E3K63-5DP1-5L	E3K86-DS30P1	E3K86-R2P1	E3K86-5DP1-5L
		PNP NC	E3K64-DS30P2	E3K64-R2P2	E3K64-5DP2-5L	E3K63-DS50P2	E3K63-R2P2	E3K63-5DP2-5L	E3K86-DS30P2	E3K86-R2P2	E3K86-5DP2-5L
检测范围 Detection range			30cm±10%	2m±10%	5m±10%	50cm±10%	2m±10%	5m±10%	30cm±10%	2m±10%	5m±10%
检测目标 Detection target			透明/不透明物体 Transparent / Opaque object	不透明物体 Opaque object	不透明物体 Opaque object	透明/不透明物体 Transparent / Opaque object	不透明物体 Opaque object	不透明物体 Opaque object	透明/不透明物体 Transparent / Opaque object	不透明物体 Opaque object	不透明物体 Opaque object
检测范围调节 Detection range regulation			灵敏度调节器 Sensitivity adjuster	灵敏度调节器 Sensitivity adjuster	固定 Fixed	灵敏度调节器 Sensitivity adjuster	灵敏度调节器 Sensitivity adjuster	固定 Fixed	灵敏度调节器 Sensitivity adjuster	灵敏度调节器 Sensitivity adjuster	固定 Fixed
响应时间 Respnose time			1ms	1ms	1ms	1ms	1ms	1ms	1ms	1ms	1ms
图例 Illustration			图179 Chatr179			图180 Chatr180			图181 Chatr181		

特性参数 Characteristic parameters

接通延时：1.5ms
光源：红外光660nm
电源电压：直流型：DC12~24V(6~36V)脉动(p-p)10%以下，
交流型：AC110~220V(90~250V)50/60Hz
消耗电流：N.P型：20mA以下，A型：1.7mA以下
控制输出：N.P型：300mA以下，A型：400mA以下，J型：2A以下(触点寿命：10万次)
回路保护：N.P.D型：逆连接保护、浪涌吸收、负载短路保护，A型：浪涌吸收
环境温、湿度：动作时、保存时：各-30~65℃(不结冰、不结露)，
动作时、保存时：各35~95%RH
绝缘阻抗：50MΩ以上(DC500兆欧表)充电部分与外壳间
耐电压：AC1000V 50/60Hz 1min充电部分与外壳间
温度的影响：温度范围-30~+65℃，+23℃时、±15%检测距离以内，
温度范围-25~+60℃,+23℃时、 ±10%检测距离以内
电压的影响：额定电源电压范围±15%以内、额定电源电压值时、±10%检测距离以内
保护构造：IP65(IEC规格)
材质：(外壳：铝压铸 ABS) (检测面(透镜)：PMMA)

Connection delay：1.5ms.
Light source：Infrared light 660nm.
Supply voltage：DC type: DC12-24V(6-36V) Impulse (p-p) 10% below,
AC type:AC110-220V(90-250V) 50/60Hz.
Consumption current：N.P type: 20mA below, A type: 1.7mA below.
Control output：N.P type: 300mA below, A type: 400mA below, J type: 2A below (contact service life: 0.1 million times).
Loop protection：N.P..D type: reversal connection protection, surge absorption, load short-circuit protection, A type: surge absorption
Ambient temperature & humidity：During operation, storage: individually -30~+65℃ (no freeze, no drew), During operation, storage: individually 35~95%RH.
Insulation impedance：50MΩabove (DC500 megameter) between charging part and housing.
Withstand voltage：AC1000V 50/60Hz 1min between charging part and housing
Temperature influence：Temperature range -30~+65℃, at +23℃, ±15% detection distance; temperature range -25~+60℃, at +23℃, ±10% detection distance.
Voltage influence：Inside ±15% rated supply voltage range, at rated supply voltage value, inside ±10% detection distance.
Protection structure：IP65 (IEC specification).
Material：Housing： Nickel plated brass (ABS)
Detection surface (lens)：PMMA.

特性参数 Characteristic parameters

Chart 173 图173 E3K76-□

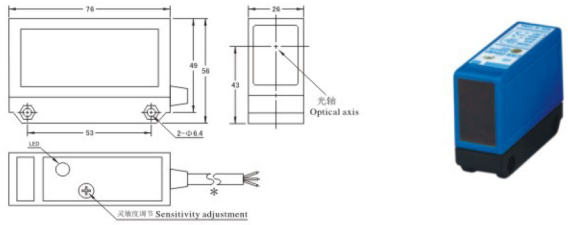


Chart 174 图174 E3K85-□

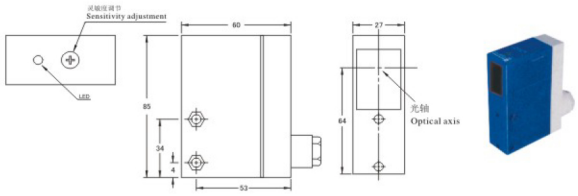


Chart 175 图175 GDK-□

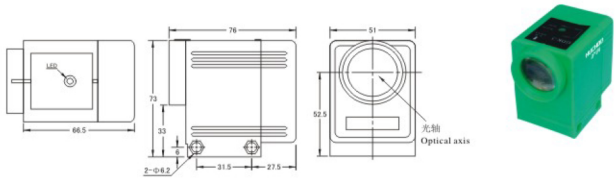


Chart 176 图176 E3K40-□

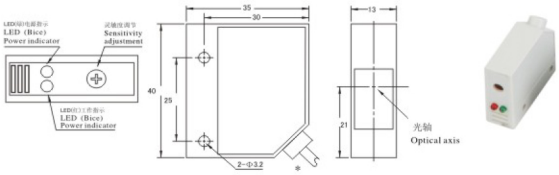


Chart 177 图177 E3K50-□

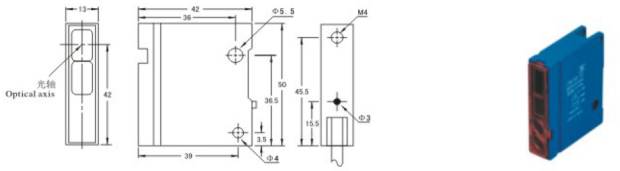


Chart 178 图178 E3K75-□

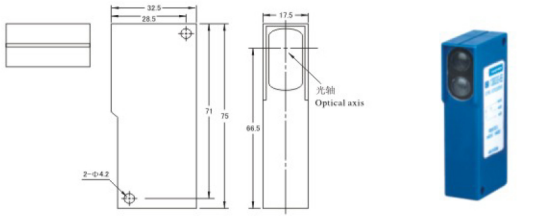


Chart 179 图179 E3K64-□

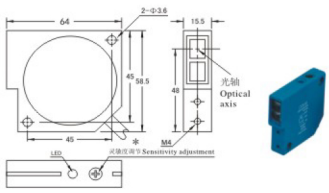


Chart 180 图180 E3K63-□

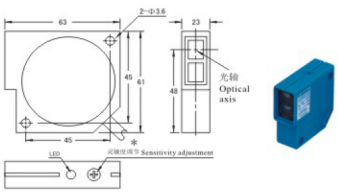
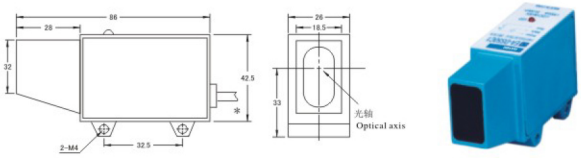


Chart 181 图181 E3K86-□



方型能与国内外各相同品种直接替换 Square model can with various domestic same species directly replaced

- 电源反接保护、短路保护，可直接与PLC相联接 — Power supply reversal connection protection; short-circuit protection, can directly connect with PLC
- 新增电流过载保护 — Newly added current over-load protection
- 长寿命和高可靠性，耐环境性强 — Long service life, high reliability and strong resistance property to environment
- 红色LED显示可以检测传感器工作状态 — Red LED indicates that it's available to detect the sensor operating state
- 新增金属外壳形，增大了安装强度 — Newly added metal housing to improve the installation intensity
- 增加外壳强度和断线的对策 — Countermeasure to improve the housing intensity and to solve disconnection
- IP65防护结构(IEC规格) — Ip65 protection structure (IEC specification)
- 使用前请先阅读产品说明书的“注意事项” — Read the “Matters needing attention” of the Product Instruction before use

规格型号 Type and Specification

尺寸 Dimension				12×25×30			15.5×21×41			20×20×64		
检测方式 Detection method				漫反射式 Diffuse type	反馈反射式 Feedback reflection type	对射式 DuiShe type	漫反射式 Diffuse type	反馈反射式 Feedback reflection type	对射式 DuiShe type	漫反射式 Diffuse type	反馈反射式 Feedback reflection type	对射式 DuiShe type
型号 Type	直流型 DC type	NPN	NO	E3K30-DS10N1	E3K30-R2N1	E3K30-3DN1-3L	E3K41-DS20N1	E3K41-R2N1	E3K41-5DN1-5L	E3S-DS30N1	E3S-R2N1	E3S-5DN1-5L
			NC	E3K30-DS10N2	E3K30-R2N2	E3K30-3DN2-3L	E3K41-DS20N2	E3K41-R2N2	E3K41-5DN2-5L	E3S-DS30N2	E3S-R2N2	E3S-5DN2-5L
			NO+NC							E3S-DS30N3	E3S-R2N3	E3S-5DN3-5L
		PNP	NO	E3K30-DS10P1	E3K30-R2P1	E3K30-3DP1-3L	E3K41-DS20P1	E3K41-R2P1	E3K41-5DP1-5L	E3S-DS30P1	E3S-R2P1	E3S-5DP1-5L
			NC	E3K30-DS10P2	E3K30-R2P2	E3K30-3DP2-3L	E3K41-DS20P2	E3K41-R2P2	E3K41-5DP2-5L	E3S-DS30P2	E3S-R2P2	E3S-5DP2-5L
			NO+NC							E3S-DS30P3	E3S-R2P3	E3S-5DP3-5L
		NPN/PNP/NO/NC								E3S-DS30X	E3S-R2X	E3S-5X
	交流型 AC type	二线 Two-wire	NO							E3S-DS30A1	E3S-R2A1	E3S-5A1
			NC							E3S-DS30A2	E3S-R2A2	E3S-5A2
		三线NO Three-wire No										
		继电器输出 Relay output										
检测范围 Detection range				10cm±10%	2m±10%	3m±10%	20cm±10%	2m±10%	5m±10%	30cm±10%	2m±10%	5m±10%
检测目标 Detection target				透明/不透明物体 Transparent / Opaque object	不透明物体 Opaque object	不透明物体 Opaque object	透明/不透明物体 Transparent / Opaque object	不透明物体 Opaque object	不透明物体 Opaque object	透明/不透明物体 Transparent / Opaque object	不透明物体 Opaque object	不透明物体 Opaque object
检测范围调节 Detection range regulation				固定 Fixed	固定 Fixed	固定 Fixed	灵敏度调节器 Sensitivity adjuster	固定 Fixed	固定 Fixed	灵敏度调节器 Sensitivity adjuster	固定 Fixed	固定 Fixed
响应时间 Respnose time				1ms	1ms	1ms	1ms	1ms	1ms	DC:1ms AC:30ms	DC:1ms AC:30ms	DC:1ms AC:30ms
图例 Illustration				图182 Chatr182			图183 Chatr183			图184 Chatr184		

规格型号 Type and Specification

尺寸 Dimension				12×26×55			18×37×70			16×28×51		
检测方式 Detection method				漫反射式 Diffuse type	反馈反射式 Feedback reflection type	对射式 DuiShe type	漫反射式 Diffuse type	反馈反射式 Feedback reflection type	对射式 DuiShe type	漫反射式 Diffuse type	反馈反射式 Feedback reflection type	对射式 DuiShe type
型号 Type	直流型 DC type	NPN	NO	E3K55-DS30N1	E3K55-R2N1	E3K55-5DN1-5L	E3K70-DS50N1	E3K70-R2N1	E3K70-5DN1-5L	E3K51-DS30N1	E3K51-R2N1	E3K51-5DN1-5L
			NC	E3K55-DS30N2	E3K55-R2N2	E3K55-5DN2-5L	E3K70-DS50N2	E3K70-R2N2	E3K70-5DN2-5L	E3K51-DS30N2	E3K51-R2N2	E3K51-5DN2-5L
			NO+NC									
		PNP	NO	E3K55-DS30P1	E3K55-R2P1	E3K55-5DP1-5L	E3K70-DS50P1	E3K70-R2P1	E3K70-5DP1-5L	E3K51-DS30P1	E3K51-R2P1	E3K51-5DP1-5L
			NC	E3K55-DS30P2	E3K55-R2P2	E3K55-5DP2-5L	E3K70-DS50P2	E3K70-R2P2	E3K70-5DP2-5L	E3K51-DS30P2	E3K51-R2P2	E3K51-5DP2-5L
			NO+NC									
		NPN/PNP/NO/NC										
	交流型 AC type	二线 Two-wire	NO	E3K55-DS30A1	E3K55-R2A1	E3K55-5A1	E3K70-DS50A1	E3K70-R2A1	E3K70-5A1	E3K51-DS30A1	E3K51-R2A1	E3K51-5DA1
			NC	E3K55-DS30A2	E3K55-R2A2	E3K55-5A2	E3K70-DS50A2	E3K70-R2A2	E3K70-5A2	E3K51-DS30A2	E3K51-R2A2	E3K51-5DA2
		三线NO Three-wire No										
		继电器输出 Relay output										
检测范围 Detection range				30cm±10%	2m±10%	5m±10%	50cm±10%	2m±10%	5m±10%	30cm±10%	2m±10%	5m±10%
检测目标 Detection target				透明/不透明物体 Transparent / Opaque object	不透明物体 Opaque object	不透明物体 Opaque object	透明/不透明物体 Transparent / Opaque object	不透明物体 Opaque object	不透明物体 Opaque object	透明/不透明物体 Transparent / Opaque object	不透明物体	不透明物体 Opaque object
检测范围调节 Detection range regulation				固定 Fixed	固定 Fixed	固定 Fixed	灵敏度调节器 Sensitivity adjuster	固定 Fixed	固定 Fixed	灵敏度调节器 Sensitivity adjuster	固定 Fixed	固定 Fixed
响应时间 Respnose time				DC:1ms AC:30ms	DC:1ms AC:30ms	DC:1ms AC:30ms	DC:1ms AC:30ms	DC:1ms AC:30ms	DC:1ms AC:30ms	DC:1ms AC:30ms	DC:1ms AC:30ms	DC:1ms AC:30ms
图例 Illustration				图185 Chatr185			图186 Chatr186			图187 Chatr187		

特性参数 Characteristic parameters

接通延时：1.5ms
光源：红外光660nm
电源电压：直流型：DC12~24V(6~36V)脉动(p-p)10%以下，
交流型：AC110~220V(90~250V)50/60Hz
消耗电流：N.P型：20mA以下，A型：1.7mA以下
控制输出：N.P型：300mA以下，A型：400mA以下，J型：2A以下(触点寿命：10万次)
回路保护：N.P.D型：逆连接保护、浪涌吸收、负载短路保护，A型：浪涌吸收
环境温、湿度：动作时、保存时：各-30~65℃(不结冰、不结露)，
动作时、保存时：各35~95%RH
绝缘阻抗：50MΩ以上(DC500兆欧表)充电部分与外壳间
耐电压：AC1000V 50/60Hz 1min充电部分与外壳间
温度的影响：温度范围-30~+65℃，+23℃时、±15%检测距离以内，
温度范围-25~+60℃,+23℃时、 ±10%检测距离以内
电压的影响：额定电源电压范围±15%以内、额定电源电压值时、±10%检测距离以内
保护构造：IP65(IEC规格)
材质：(外壳：铝压铸 ABS) (检测面(透镜)：PMMA)

Connection delay：1.5ms.
Light source：Infrared light 660nm.
Supply voltage：DC type: DC12-24V(6-36V) Impulse (p-p) 10% below,
AC type:AC110-220V(90-250V) 50/60Hz.
Consumption current：N.P type: 20mA below, A type: 1.7mA below.
Control output：N.P type: 300mA below, A type: 400mA below, J type: 2A below
(contact service life: 0.1 million times).
Loop protection：N.P..D type: reversal connection protection, surge absorption,
load short-circuit protection, A type: surge absorption
Ambient temperature & humidity：During operation, storage: individually
-30~+65℃ (no freeze, no drew), During
operation, storage: individually 35~95%RH.
Insulation impedance：50MΩabove (DC500 megameter) between charging part
and housing.
Withstand voltage：AC1000V 50/60Hz 1min between charging part and housing
Temperature influence：Temperature range -30~+65℃, at +23℃, ±15% detection
distance; temperature range -25~+60℃, at +23℃, ±10%
detection distance.
Voltage influence：Inside ±15% rated supply voltage range, at rated supply
voltage value, inside ±10% detection distance.
Protection structure：IP65 (IEC specification).
Material：Housing： Nickel plated brass (ABS)
Detection surface (lens)：PMMA.

外形尺寸(mm) External dimension

Chart 182 图182 E3K30-□

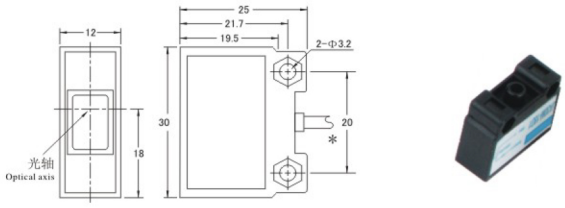


Chart 183 图183 E3K41-□

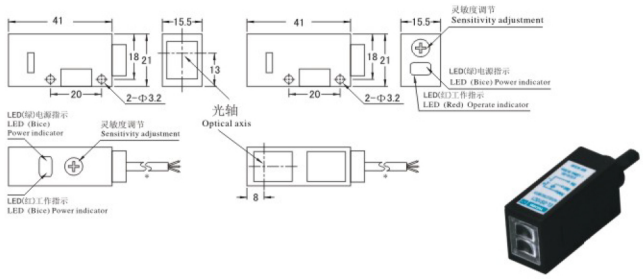


Chart 184 图184 E3S-□

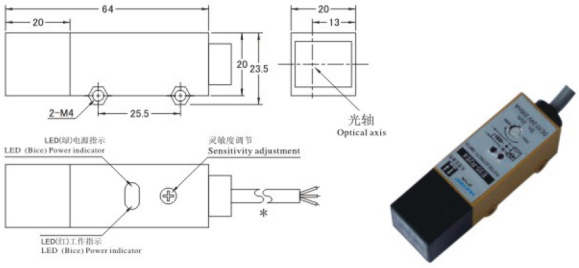


Chart 185 图185 E3K55-□

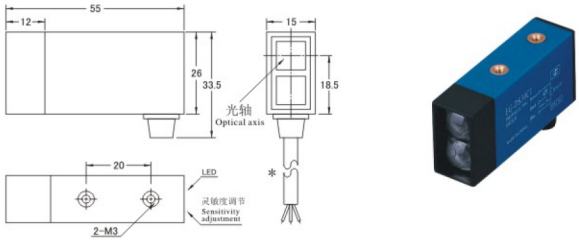


Chart186 图186 E3K70-□

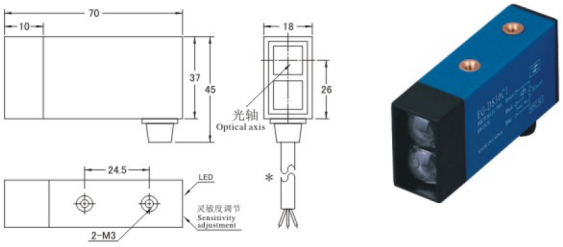
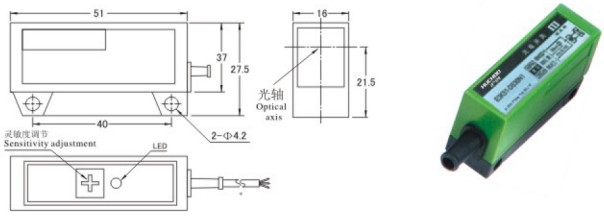


Chart 187 图187 E3K51-□



色标、槽型能与国内外各相同品种直接替换 Color code, groove can with various domestic same species directly replaced

- 电源反接保护，可直接与PLC相联接 — Power supply reversal connection protection; can directly connect with PLC
- 槽型无需调整光轴 — For slot type, there is no need to adjust the optical axis
- 长寿命和高可靠性，耐环境性强 — Long service life, high reliability and strong resistance property to environment
- 红色LED显示可以检测传感器工作状态 — Red LED indicates that it's available to detect the sensor operating state
- 新增金属外壳形，增大了安装强度 — Newly added metal housing to improve the installation intensity
- 增加外壳强度和断线的对策 — Countermeasure to improve the housing intensity and to solve disconnection
- IP65防护结构(IEC规格) — Ip65 protection structure (IEC specification)
- 使用前请先阅读产品说明书的“注意事项” — Read the “Matters needing attention” of the Product Instruction before use

规格型号 Type and Specification

尺寸 Dimension				16×25×55	25.5×45.5×75	16×35.5×40.5	20×52×72	20×52×72
检测方式 Detection method				槽式 Slot type	槽式 Slot type	槽式 Slot type	槽式 Slot type	槽式 Slot type
型号 Type	直流型 DC type	NPN	NO	E3S-GS7N	E3S-GS10N	E3S-GS15N	E3S-GS30E4	E3S-GS50E4
			NC	E3S-GS7N2	E3S-GS10N2	E3S-GS15N2	E3S-GS30E2	E3S-GS50E2
			NO+NC				E3S-GS30E42	E3S-GS50E42
		PNP	NO	E3S-GS7P	E3S-GS10P	E3S-GS15P	E3S-GS30P4	E3S-GS50P4
			NC	E3S-GS7P2	E3S-GS10P2	E3S-GS15P2	E3S-GS30P2	E3S-GS50P2
			NO+NC				E3S-GS30P42	E3S-GS50P42
检测范围 Detection range				7mm	10mm	15mm	30mm	50mm
检测目标 Detection target				不透明物体 Opaque object	不透明物体 Opaque object	不透明物体 Opaque object	不透明物体 Opaque object	不透明物体 Opaque object
检测范围调节 Detection range regulation				灵敏度调节器 Sensitivity adjuster	灵敏度调节器 Sensitivity adjuster	灵敏度调节器 Sensitivity adjuster	灵敏度调节器 Sensitivity adjuster	灵敏度调节器 Sensitivity adjuster
响应时间 Respnose time				1ms	1ms	1ms	1ms	1ms
图例 Illustration				图188 Chatr188	图189 Chatr189	图190 Chatr190	图191 Chatr191	图192 Chatr192

规格型号(光电探边控制器) Type and Specification(Optical probe edge controller)

尺寸 Dimension			32×70×120
检测方式 Detection method			槽式 Slot type
型号 Type	交流型 AC type	NO+NC	HF-HJ03
电源电压 Supply voltage			AC12-24V±10%
探边控制精度			<8mm
光电探测组数			2组
输出信号			2组独立无触点输出AC12-24V
检测目标 Detection target			不透明物体 Opaque object
检测范围调节 Detection range regulation			灵敏度调节器 Sensitivity adjuster
响应时间 Respnose time			1-30ms
图例 Illustration			图193 Chatr193

规格型号(色标传感器) Type and Specification (Color sensors)

尺寸 Dimension			28×48×80	22×63×89
检测方式 Detection method			同轴反射式 Coaxial Reflective	同轴反射式 Coaxial Reflective
型号 Type	交流型 AC type	NO+NC	Z3N	KS-C2
电源电压 Supply voltage			红、绿、兰、白	红、绿、兰、白
探边控制精度			圆点（绿色）	圆点（绿色）
光电探测组数			DC10-30V±10%	DC10-30V±10%
输出信号			<200mA	<200mA
检测目标 Detection target			10mm±2mm	10mm±3mm
检测范围调节 Detection range regulation			灵敏度调节器 Sensitivity adjuster	灵敏度调节器 Sensitivity adjuster
响应时间 Respnose time			0.1-1mS	0.25-1mS
图例 Illustration			图194 Chatr194	图195 Chatr195

规格型号(色标传感器) Type and Specification (Color sensors)

尺寸 Dimension				28×57×85	38×62×100	23×40×56
检测方式 Detection method				同轴反射式 Coaxial Reflective	同轴反射式 Coaxial Reflective	同轴反射式 Coaxial Reflective
型号 Type	直流型 DC type	NPN	NO+NC	BZJ-211	BZJ-311	BZJ-411
光源色谱				红、绿、兰、白	红、绿、兰、白	红、绿、兰、白
光点（颜色）				圆点（绿色）	圆点（绿色）	圆点（绿色）
电源电压 Supply voltage				DC10-30V±10%	DC10-30V±10%	DC10-30V±10%
负载电流				<200mA	<200mA	<200mA
检测距离 Detection distance				10mm±2mm	9mm	9mm
检测范围调节 Detection range regulation				灵敏度调节器 Sensitivity adjuster	灵敏度调节器 Sensitivity adjuster	灵敏度调节器 Sensitivity adjuster
响应时间 Respnose time				50uS	50uS	20uS/500uS
图例 Illustration				图196 Chatr196	图197 Chatr197	图198 Chatr198

特性参数 Characteristic parameters

接通延时：1.5ms
光源：红外光660nm
电源电压：直流型：DC12~24V(6~36V)脉动(p-p)10%以下，
交流型：AC110~220V(90~250V)50/60Hz
消耗电流：N.P型：20mA以下，A型：1.7mA以下
控制输出：N.P型：300mA以下，A型：400mA以下，J型：2A以下(触点寿命：10万次)
回路保护：N.P.D型：逆连接保护、浪涌吸收、负载短路保护，A型：浪涌吸收
环境温、湿度：动作时、保存时：各-30~65℃(不结冰、不结露)，
动作时、保存时：各35~95%RH
绝缘阻抗：50MΩ以上(DC500兆欧表)充电部分与外壳间
耐电压：AC1000V 50/60Hz 1min充电部分与外壳间
温度的影响：温度范围-30~+65℃，+23℃时、±15%检测距离以内，
温度范围-25~+60℃,+23℃时、 ±10%检测距离以内
电压的影响：额定电源电压范围±15%以内、额定电源电压值时、±10%检测距离以内
保护构造：IP66(IEC规格)
材质：(外壳：铝压铸 ABS) (检测面(透镜)：PMMA)

Connection delay：1.5ms.
Light source：Infrared light 660nm.
Supply voltage：DC type: DC12-24V(6-36V) Impulse (p-p) 10% below,
AC type:AC110-220V(90-250V) 50/60Hz.
Consumption current：N.P type: 20mA below, A type: 1.7mA below.
Control output：N.P type: 300mA below, A type: 400mA below, J type: 2A below (contact service life: 0.1 million times).
Loop protection：N.P..D type: reversal connection protection, surge absorption, load short-circuit protection, A type: surge absorption
Ambient temperature & humidity：During operation, storage: individually -30~+65℃ (no freeze, no drew), During operation, storage: individually 35~95%RH.
Insulation impedance：50MΩabove (DC500 megameter) between charging part and housing.
Withstand voltage：AC1000V 50/60Hz 1min between charging part and housing
Temperature influence：Temperature range -30~+65℃, at +23℃, ±15% detection distance; temperature range -25~+60℃, at +23℃, ±10% detection distance.
Voltage influence：Inside ±15% rated supply voltage range, at rated supply voltage value, inside ±10% detection distance.
Protection structure：IP66 (IEC specification).
Material：Housing： Nickel plated brass (ABS)
Detection surface (lens)：PMMA.

外形尺寸(mm) External dimension

Chart 188 图188 E3S-GS7□

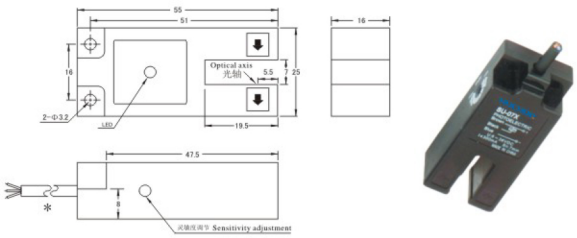


Chart 189 图189 E3S-GS10□

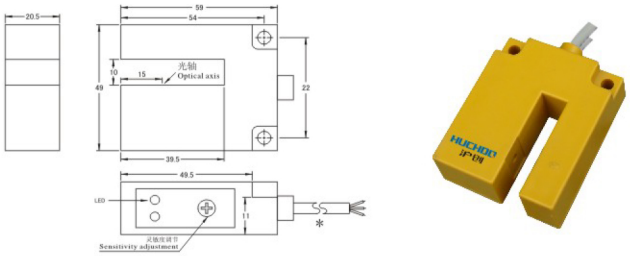


Chart 190 图190 E3S-GS15□

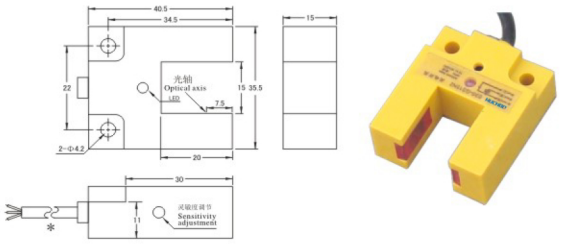


Chart 191 图191 E3S-GS30□

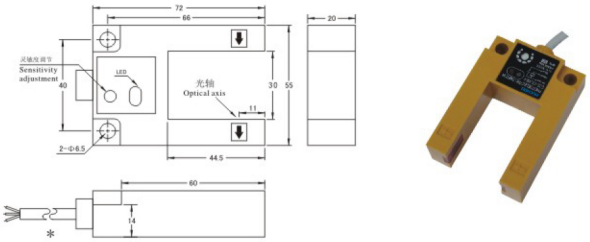


Chart 192 图192 E3S-GS50□

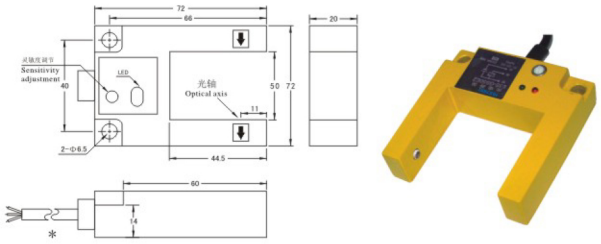


Chart 193 图193 HF-HJ03

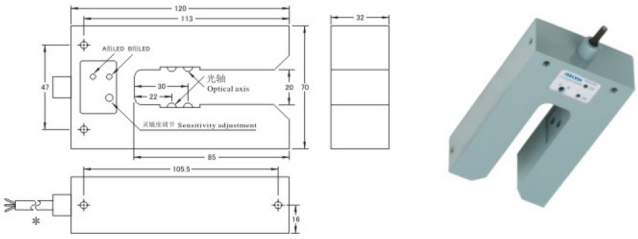


Chart 194 图194
Z3N

Chart 195 图195
KS-C2

Chart 196 图196
BZJ-211

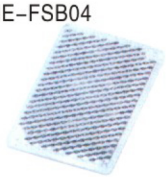
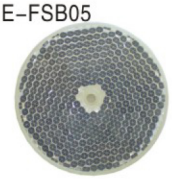
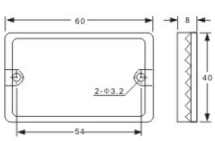
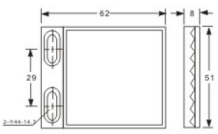
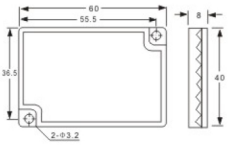
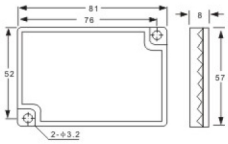
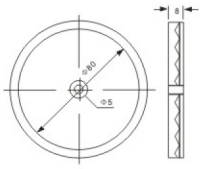
Chart 197 图197
BZJ-311

Chart 198 图198
BZJ-411

连接器系列 Connector Series

外形 Shape	螺扣 Screw buckle	型号 Type	规格 Specification	连接图Connection diagram NPN/PNP NO	NPN/PNP NC	NPN/PNP NO+NC	AC/DC 二线 NO AC/DC Two-wire NO	AC/DC二线 NC AC/DC Two-wire Nc
	M8	L1	三芯直型 Three-core straight type					
	M8	L2	四芯直型 Four-core straight type					
	M8	L3	三芯弯型 Three-core bent type					
	M8	L4	四芯弯型 Four-core bent type					
	M8	L5	三芯中继 Three-core relay					
	M12	L6	四芯直型 Four-core straight type					
	M12	L7	四芯弯型带LED Four-core bent type with LED					
	M12	L8	四芯中继 Four-core relay					
	M12	L9	四芯直型 Four-core straight type					
	M12	L10	四芯直型 Four-core straight type					

反射板系列 Reflection board Series

	CHE-FSB01	CHE-FSB02	CHE-FSB03	CHE-FSB04	CHE-FSB05
外形 Shape					
Installation dimension 安装尺寸					

备忘录

MEMORANDUM